



## Clark Atlanta University Capability Statement

Institution: **Clark Atlanta University**

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Certificates, Registrations, Accreditations: **SACSCOC, AACSB, CSWE, CACREP, NSPPAA, NCATE, GAPSC**

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### OVERVIEW

Clark Atlanta University (CAU) is a private, coeducational, four-year university located in the historic heart of Atlanta. Established in 1988 by the consolidation of Atlanta University (1865) and Clark College (1869), CAU is designated by the Carnegie Foundation for the Advancement of Teaching as a Doctoral Universities-High Research Activity. Our 4,000 students are engaged in 38 areas of study in our four schools: The School of Arts and Sciences, the School of Business Administration, the School of Education, and the Whitney M. Young, Jr. School of Social Work. National business and consumer publications rank CAU “high among the best institutions in American higher education.” Clark Atlanta University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, master’s, specialist, and doctorate degrees.

### RESEARCH CAPABILITIES

*Below we have briefly described some of our centers that have the potential to support external contract research, development, and testing services. Research carried out at CAU is subject to export control as described in the CAU Export Control Policy. CAU has developed research centers for the development of new knowledge that fosters technology transfer to the marketplace.*

**Center of Excellence in Materials Science and Informatics** is focused on 2D Materials, Bio-based Polymers and Composites, Computational Chemistry, Computational Materials Science, Drug Delivery, Heterogeneous Catalysts, Lithium-ions Batteries, Energy storage, Multi-ferroics Memory Devices. The Center is supported by funding from DOD, DOE, AFOSR, NSF, USDA, Sloan Foundation, and Arconic Foundation. CAU is the only HBCU to have won NSF Centers of Research Excellence in Science and Technology (CREST Centers), NSF NSF-Partnership for Research and Education in Chemistry, and NSF Partnership for Research and Education in Chemistry (PREM) programs, all three of which are based on materials chemistry.

**Cyber Physical Systems Intelligent Machine Cluster (IMC)** promotes education, research, and training on intelligent systems. The goal of intelligent systems is to develop machines that adapt their behavior by sensing their environment and making context-appropriate decisions. The IMC conducts research and training in Artificial Intelligence, Cybersecurity, and Cyber-Physical Systems. This cluster is supported by funding from NSF, DOD, Dept of Ed., Georgia Research Alliance, Boeing, and Northrop Gruman.

**Center for Cancer Research and Therapeutic Development (CCRTD)** was developed as a vehicle of communication and collaboration for CAU scientists interested in any aspect of cancer research. The CCRTD is one of the Nation’s leading prostate cancer research centers. The CCRTD is currently supported by the Research Center in Minority Institutions (RCMI) program of the National Center for Research Resources at the National Institutes of Health along with several other grants from NIH, DOD, and NSF. The biomedical research projects range from studies on signal transduction mechanisms to the development of better drug delivery systems. This core group collaborates with other scientists at the University who are involved in projects that complement and enhance the Center. CCRTD is currently working to recruit social and behavioral scientists who will explore the ethical, legal, and social implications of biomedical research in general and cancer research in particular.

**National Data Science Alliance (NDSA)** is focused on increasing the number of Blacks earning data science credentials (e.g., major, minor, certificate, or post baccalaureate) by at least 20,000 by 2027 and expanding data science research that advocates for social justice and strives to eliminate bias. The Center is developing a national network of academic, industry, and government partnerships that will grow the capacity of Historically Black Colleges and Universities (HBCUs) to transform data science discoveries into tangible societal benefits. This Center is catalyzing systemic change at scale by engaging HBCU faculty and staff in data science training, curriculum development, and research. The NDSA is pursuing four mutually reinforcing goals: (1) expanding academic and research opportunities that engage HBCU undergraduate and graduate students in

data science; (2) developing research in data science that reduces bias and promotes ethics, fairness, and validity; (3) fostering the growth of sustainable institutional capacity in data science at HBCUs; and (4) championing evidence-based inclusive practices and strategies that broaden the participation of HBCUs in data science. The NDSA is led by CAU in partnership with Howard and Fisk Universities and the Atlanta University Center Inc.

**The Center of Excellence in Supply Chain Management.** The demand for professionals in Supply Chain Management (SCM) is rapidly growing as firms are realizing improved efficiency, lower costs, and increased profitability resulting from strong supply chain practices. With this in mind, the SCM program at CAU is designed to constantly challenge students by exposing them to knowledge and learning inside and outside of the classroom.

## **FACILITIES**

*The following laboratories are housed in the 200,000 sq. ft. Cole Research Center for Science & Technology and the adjacent 30,000 sq. ft. Environmental Science & Engineering Research building.*

**INNOVATION LAB 3D PRINTER/ADDITIVE MANUFACTURING (AM).** The CAU innovation lab is designed to support students and faculty and facilitate technology transfer to the marketplace. As part of CAU's Innovation Lab, we have developed a 3D printing/additive manufacturing laboratory (AM) with fifteen (15) 3D printers. This lab is designed with room for further expansion in the future. AM, is a key technology for rapid prototyping, new product development, and production of low volume parts for a variety of applications.

**THERMAL ANALYSIS LABORATORY** provides Differential Scanning Calorimeter (DSC), Thermo-gravimetric Analysis (TGA), Dynamic Mechanical Analysis (DMA), and Thermo-mechanical Analysis (TMA). The Thermal Analysis Laboratory allows the determination of the degree of cure, heat of reaction, cure kinetics, and glass transition temperature ( $T_g$ ).

**MECHANICAL CHARACTERIZATION** capabilities include ASTM, SACMA, CMC, and MIL-STD tensile, compression, torsion, flexural, and shear quasi-static as well as high cycle dynamic (fatigue) testing. Digitally controlled convection chambers (-129°C to 600°C) temperatures along with high-temperature capacitance extensometers allow experiments to be conducted at extreme temperatures.

**RHEOLOGY** lab functions in parallel with the thermal analysis laboratory. The rheology equipment allows the determination of the viscoelastic properties of polymeric materials as it relates to molecular structure, processibility, physical properties and end-use performance.

**MATERIALS ANALYSIS** analyzes materials using Infrared Spectroscopy (IR), Raman Spectroscopy, Nuclear Magnetic Resonance (NMR), Scanning Electron Microscope (SEM), X-Ray Photoelectron Spectroscopy (XPS), X-ray diffraction (XRD), Fluorescence Spectroscopy, Electron and Ion Spectroscopy (SIMS), ICP/MS, LC/MS. These labs are essential for determining the material's makeup and properties.

**GEOGRAPHIC INFORMATION SYSTEM (GIS) LABORATORY** is designed to capture, store, manipulate, analyze, manage, and present spatial or geographical data and is administered through the Department of Sociology and Criminal Justice and a full-time GIS Coordinator. The laboratory is configured with a SmartBoard system, 14 stations, and a portable Wacom Cintiq tablet.

**COMPUTATIONAL FACILITIES** A dedicated GPU cluster. The system consists of a control node, and seven compute nodes with a total of 1.34 TB of memory. Each compute node is equipped with dual 18-core Intel Xeon Gold 6140 Scalable Processors, 192GB of DDR4 memory configured for maximal memory bandwidth, and two NVIDIA Tesla V100 GPUs with 16 G.B. of onboard high-bandwidth memory.

**CELL and MOLECULAR BIOLOGY LABORATORY** includes autoclaves, incubators, cell counters, cell sorters, cryopreservation tanks, centrifuges and ultracentrifuges, flow cytometry, PCR machines, scintillation counters. Histology and imaging, biostatics, and bioinformatics.

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For additional information, visit our website at [www.cau.edu](http://www.cau.edu)