# **RESOURCES & ENVIRONMENT (R&E)**

**USC/** **Molinaroli College of Engineering and Computing “Boilerplate” Information for Sponsored Award Proposals**

*The following includes ‘boilerplate’ (basic) information about the University of South Carolina (USC) and the Arnold School of Public Health (ASPH):*

* *Use only what you need*. *Include only the information that is pertinent to your proposal* (not the whole thing). Note that there is some information overlap between sections.
* Be sure to add specific department, lab, equipment, and collaboration information as needed for your proposal and edit out what is not relevant to it.
* Other USC units and external institutions/organizations should be able to supply you with their R&E information upon request.
* Overview and contact information about additional ASPH centers and programs is at: <https://sc.edu/study/colleges_schools/public_health/research/research_centers/index.php>

*Updated Summer 2024 (Arial 11 pt.)*

# **The University of South Carolina (USC)**

**The University of South Carolina (USC)** was established in 1801 and is a full-service, state- assisted research university that includes the 358-acre Columbia campus and seven regional campuses, with a total full-time student body population of more than 35,000 in Columbia and 50,000 overall. Located in the capital city of Columbia in the geographic center of the state, USC's main campus is part of a thriving metropolitan area of more than 800,000 inhabitants. USC offers a broad spectrum of educational opportunities with 14 colleges and schools that encompass 324 undergraduate and graduate degree-granting programs. USC confers 25% of all bachelors, graduate, and professional degrees awarded at institutions of higher education in South Carolina.

**USC Research Capacity.** In fiscal year 2023, USC was awarded $244 million in extramural sponsored award funding, 71% percent of which was for research. USC is listed in the Carnegie Classification of Institutions of Higher Education as a Very High Research Activity University.

The University provides researchers with a full range of grant and contract-related services through its Sponsored Awards Management and Grants and Funds Management offices. USC’s Office of Research Compliance oversees the institutional review processes for human and animal subjects as well as disclosure and management of financial conflicts of interest and assists with scientific misconduct regulation and export controls.

**The SC SmartState Centers of Economic Excellence** **program** was established by the state's General Assembly in 2002 with $180 million of non-tax revenue funds generated from the South Carolina Education Lottery. These funds, along with legislatively mandated dollar-for-dollar matching non-state funds, provide support for hiring world-class researchers who serve as the endowed chairs of the SmartState Centers. The 51 Centers are grouped into six industry- focused Smart Clusters to facilitate engagement with business, students, potential faculty, and the public. Each Center includes one or more endowed chair, research infrastructure, technical staff, and sustainable funding sources. USC is home to 27 SmartState Centers, including 18 that are headquartered at USC's Columbia campus and eight within which USC actively collaborates working with other SC research institutions.

**USC Libraries.** Thomas Cooper, the University’s main library, is centrally located on the Columbia campus, and the School of Medicine library is a 15-minute drive from central campus. Both libraries maintain an extensive collection of health-related resources, including books,

journals, and indices. Access to online databases and full-text journals is available through the Thomas Cooper Library Web page.

**USC’s Division of Information Technology (DoIT)**, under the direction of the Vice President for Information Technology and Chief Information Officer, oversees centralized computing and telecommunications services for academic, research, and administrative use to meet the needs of USC faculty, staff, and students. DoIT provides the USC community with computing, voice, and data communications, networking, data security, video transport, information technology training, web services, customer support, desktop and server support, installation and maintenance of IT infrastructure, policies and procedures assistance, software licensing and distribution, IT planning, applications development and support, and operational systems. The Columbia campus is covered by wireless service. USC has a licensing agreement with Microsoft that includes 5TB of secure cloud storage space for every faculty and staff member on OneDrive. Microsoft has signed legal agreements with the University that holds them liable for the security and protection of data stored on OneDrive.

Reporting to the Division of Information Technology and working in close partnership with the Office of Research, the Research Computing department (RC) engages faculty and researchers across multiple colleges and campuses to help define and execute the research mission of the University of South Carolina. RC manages and supports local high performance computing resources and storage as well as teaching workshops on a variety of high-performance computing topics. RC works with researchers to improve their project performance and secure computing resources not only at the university level but beyond, to National Labs and other high profile HPC resources. Research Computing encompasses computing technology, data storage systems, advanced instruments, visualization environments, data analysis and management systems, and human resources, linked by high-speed networks to make scientific and engineering innovation and discoveries possible.

# **The Molinaroli College of Engineering and Computing (MCEC)**

**Molinaroli College of Engineering and Computing (MCEC).** The first Engineering classes were taught at the University of South Carolina in 1848. Engineering degrees have been offered at the University of South Carolina since 1894. The Molinaroli College of Engineering and Computing (MCEC) was established in 1909 and has an enrollment of more than 3,800 students, including 526 full-time graduate students and 3276 full-time undergraduates. The College currently employs 177 faculty members: 124 tenure track, 27 professional track, and 26 research professors. Based at USC’s main campus in Columbia, MCEC is ranked by both U.S. News and World Report and the National Research Council. The USC Molinaroli College of Engineering and Computing's mission is to become a leader in technology innovation, engineering and computing education, and entrepreneurship.

**MCEC Degree Programs.** The Molinaroli College of Engineering and Computing (MCEC) offers programs of study at the doctoral, masters and bachelors level. Doctoral degrees include Doctor of Philosophy (Ph.D.) in seven disciplines. Masters degrees are offered in eleven disciplines. Eight baccalaureate programs include Biomedical Engineering, Chemical Engineering, Civil & Environmental Engineering, Computer Engineering, Computer Information Systems, Computer Science, Electrical Engineering, and Mechanical Engineering. The Molinaroli College of Engineering and Computing is fully accredited by ABET, INC. The Engineering Accreditation Commission of ABET has accredited the biomedical engineering, chemical engineering, civil and environmental engineering, computer engineering, electrical engineering, and mechanical engineering programs. The computer information systems and computer science programs are accredited by the Computing Accreditation Commission of ABET.

**MCEC Computing Resources.** The Molinaroli College of Engineering and Computing's Information Technology Services (ITS) is responsible for managing and maintaining the college's academic labs, IT services for faculty and staff, LAN network, computing infrastructure, and network security and compliance efforts. The Molinaroli College of Engineering and Computing ITS department administers more than 300 Windows computers dedicated to the teaching mission and capable of running all the required applications needed to graduate. Students have free, 24/7 access to these labs. Therefore, a personal computer is NOT required to complete the programs in the College of Engineering and Computing. ITS manages a fleet of over 2000 endpoints in support of the research, academic, administrative, and outreach missions of the college. ITS also supports and manages a portfolio of over 500 scientific and productivity software tools, applications, and programs in support of the college’s mission.

**MCEC Computing Security and Capacity.** MCEC Information Technology Services (ITS) maintains a secure research computing environment dedicated to protecting Controlled Unclassified Information and complying with NIST SP 800-171r2 called the Carolina Enclave for Secure Research (CESR.) The environment is based on Microsoft's GCC High cloud environment to ensure ITARS compliance as well. The CESR service also includes a secure file transfer capability to facilitate exchange of controlled data with outside entities. Research Computing also maintains a high-performance computing cluster dedicated to CUI research which takes advantage of the infrastructure provided by CESR.

**MCEC Departments.** The Molinaroli College of Engineering and Computing consists of five academic departments: Chemical Engineering, Civil and Environmental Engineering, Computer Science and Engineering, Electrical Engineering, and Mechanical Engineering. Specific areas of study include Aerospace Engineering, Biomedical Engineering, Chemical Engineering, Civil and Environmental Engineering, Computer Science and Engineering, Electrical Engineering, Engineering Management, Mechanical Engineering, Nuclear Engineering, Systems Design, and Engineering/Computing and Law. MCEC also has an Industrial Engineering in the works.

**Computer Science and Engineering.** Graduates of our Computer Science and Engineering program can choose to focus their career in many different ways: entrepreneur, web applications, computer graphics, video games, enterprise computing, embedded systems, network administration, mobile applications, computer security, computer vision, computational biology, high performance (super) computing, scientific modeling, database systems, computer animations, wireless networks, artificial intelligence, and so on.

**MCEC Office of Diversity, Equity, and Inclusion**. The MCEC Office of Diversity, Equity, and Inclusion is headed by an associate dean of DEI and works closely with each of the departments and offices in MCEC, with full support of the dean, to guide and deliver opportunities, programs, and assessment for DEI impact, progress, and outcomes. This office also coordinates with the University’s office of DEI under the leadership of the USC VP of DEI and is a member of the USC Council of Academic Diversity Officers. USC is fully invested and committed at each level to university-wide initiatives focused on the recruitment of a diverse faculty, staff, and student body, while fostering an inclusive and equitable university community.

**MCEC Research Office & Resources.** The Molinaroli College of Engineering and Computing’s (MCEC) Research Office supports faculty and departmental staff from start to finish in the sponsored research process. A dedicated pre-award staff assists with proposal development-related activities that promote and support efforts to increase grant funding to the College. The Research Enhancement & Development (RED) team aids faculty in locating funding opportunities, proposal editing, finding collaborators, and managing funded projects. The RED team also coordinates peer reviews for key proposals and organizes brainstorming sessions with educational and topical experts to help PIs strengthen broader impacts. Post-award staff are dedicated to administration and financial compliance of sponsored funds. In the fiscal year 2024, MCEC principal investigators were awarded over $69.3 million in extramural funding.

**MCEC Research Capacity.** MCEC Office of Research serves as a collaborative focal point to foster research development and engagement within the MCEC, with disciplines across USC, as well as with our external partners, to support the development of clinical and translational research. In fiscal year 2024, MCEC principal investigators submitted $198 million in total proposal requests. They were awarded more than $69.3 million in research awards from both federal and non- federal sources. MCEC investigators were awarded $37.1 million from the Department of Defense and $10.1 million from the National Science Foundation. Other funding agencies included: National Institute of Health, Department of Commerce, Health and Human Services, and US Department of Education. In addition, MCEC faculty members published more than X articles in peer-reviewed research journals during the 2023 calendar year. The MCEC Office of Research’s mission is to incentivize large, complex, multidisciplinary, and collaborative projects in order to make a societal impact.

**Buildings & Labs.** The Swearingen Engineering Center has been the home of the Molinaroli College of Engineering and Computing since 1987. With more than 500,000 square feet of teaching, research, and laboratory space, the Swearingen Center is one of the largest engineering facilities in the Southeast. Research at the Molinaroli College of Engineering and Computing is supplemented and supported through our centers, institutes, and research groups, which include several South Carolina SmartState Centers of Economic Excellence. These research centers coordinate and promote faculty and student research extending across and beyond the school.

**MCEC Faculty Offices.** Each faculty member has a private office with a printer and personal computer with Microsoft Office and additional software relevant to his or her teaching and research, Internet access, telephone, and general office support. Faculty members are furnished with additional office and laboratory space as needed for project support.

**MCEC Research Centers and Institutes.** In addition to its academic departments, MCEC houses multiple interdisciplinary institutes and centers. This centers and institutes include Artificial Intelligence Institute; Center for Computational Robotics; Center for Electrochemical Engineering, Center for Information Assurance Engineering; Center for Mechanics, Materials, and Non-Destructive Evaluation; Center for Predictive Maintenance; Center for Rational Catalyst Synthesis; General Atomics Center; Hydrogen Fuel Cell Center; McNair Aerospace Center; and X-Ray Photoelectron Spectroscopy Center.

**MCEC SmartState Centers.** MCEC is home to five SmartState endowed chairs who lead Centers of Economic Excellence within the College that focus on transforming energy technology, materials sciences, fuel alternatives, and innovation in electricity: Catalysis for Renewable Fuels SmartState Center, General Atomics Center for Development of Transformational Nuclear Technology, Multifunctional Materials and Structures, Nuclear Science and Energy, Solid Oxide Fuel Cells, Strategic Approaches to the Generation of Electricity.

**Core Facilities.** The Biomedical Engineering (BME) Core Lab is dedicated to research training and teaching and is equipped with state-of-the-art instrumentation to support BME students and faculty members. This facility includes a cell culture lab, fluorescence microscopy lab, imaging and autoclave lab, and bioelectronics and biomechanics lab. This facility is equipped to handle a vast array of research techniques to aid students and researchers in answering research questions.