Clemson University ranks 23rd among public institutions in the nation, according to the U.S. News & World Report’s annual guide to “America’s Best Colleges.”

The university is divided into five distinct colleges: The College of Arts, Architecture and Humanities, the College of Agriculture, Forestry and Life Sciences, the College of Business and Behavioral Science, the College of Engineering and Science, and the College of Health, Education, and Human Development.

**College of Health Education and Human Development (HEHD):** The College of Health Education and Human Development (HEHD) was created in 1995 after university restructuring. The college includes ten administrative groups or unit:

1. Department of Counseling and Education Leadership
2. Department of Curriculum and Instruction
3. Department of Foundations and Special Education
4. Department of Technology and Human Resource Development
5. Department of Parks, Recreation, and Tourism Management
6. Department of Public Health Sciences
7. School of Nursing
8. The Outdoor Laboratory
9. National Dropout Prevention Center
10. Joseph F. Sullivan Center for Nursing and Wellness

The College of HEHD has established research as a priority within the college. The college has put an increased emphasis on funded research, and has secured on average over 6 million dollars in extramural funding for the past two years. A college-wide initiative that has helped to foster this growth in research is the establishment of the Center for Research and Collaborative Activities (CRCA).

**Center for Research and Collaborative Activities (CRCA):** The CRCA facilitates grantmanship, research, and scholarship by providing a variety of services to support faculty research. Services provided include: Identifying funding opportunities for faculty, working with faculty to assemble research team, completing and routing proposal processing forms, completing electronic submissions, developing grant budgets, providing proposal development resources, providing research design and statistics consultation, reviewing proposals for compliance with funder specifications and university policies, reviewing grants for scientific content, assisting with post-award grant budgets and management, maintaining a grant tracking system, reviewing and editing manuscripts, training faculty on SPSS database set-up, and providing ongoing seminars and workshops, including a summer grant-writing workshop.
Clemson University’s Computing and Information Technology Resources

Clemson Computing and Information Technology (CCIT): Clemson Computing and Information Technology, or CCIT, is the primary provider of computing resources and IT support for Clemson University. Currently consisting of a well-established, highly successful group of 300 faculty and technical staff and 100 students within the central unit collaborating with over 100 distributed IT staff spread among the various colleges and departments, CCIT is providing an integrated approach to high-performance computing environments and traditional computing. Within this framework, the groups that manage the various aspects of these areas will leverage the common synergies and provide comprehensive solutions, to the benefit of faculty, students, and the greater user community.

Cyberinfrastructure Technology Integration (CITI): Cyberinfrastructure Technology Integration (CITI) is a centrally funded support organization providing on-line and in-person training to faculty, staff, and students in basic use of the computing resources; assistance for success in program compiling, installation and running; and also code parallelization/optimization. CITI faculty and technical staff are a well-established, highly successful group of research scientists who have lead research in areas such as high performance computing applications, high throughput computing, high performance networking, data access and interpretation, visualization, and software environments for cyber-communities.

Data Center: Clemson Computing and Information Technology’s physical resources include the main data center located in the Information Technology Center at the Innovation Campus and Technology Park. The core of Clemson’s computing infrastructure, the data center has 21,000 square feet of raised floor and is powered by a 14MW substation, with redundant power and cooling systems, and two new UPS systems, increasing the ITC power capacity from 1MW to 2MW. The data center is the home of both enterprise and HPC systems, and is manned by CCIT staff on a 24 hour basis from a state of the art network operations center within the ITC. By the end of calendar year 2010, ITC’s power capacity will increase from 2MW to 4.5MW, by adding a 2.5MW transformer, two additional UPS systems, two 250-ton chiller plants in an N+1 redundancy, and a 2.5MW diesel generator to accompany the existing 1MW genset.

High Performance Computing – Palmetto Cluster: Clemson’s high performance computing resources includes a “condominium” style cluster, known as Palmetto, developed to serve the university’s wide-ranging research needs. Developed by Clemson Computing and Information Technology (CCIT) in collaboration with faculty researchers across the university, the Palmetto Cluster provides a shared platform that optimizes resources for the benefit of all users. Named for South Carolina’s state tree, the Palmetto Cluster is designed to suit many different research applications, with a large number of powerful multi-core nodes, each with a significant amount of memory. Ranked #85 in the world (TOP500 list, June 2010), the system currently benchmarks at 60.67 teraflops, with 1027 nodes; 8 cores per node; 12 GB/node (Dell) and 16 GB/node (Sun); 16GB/node (IBM); 80GB disk/node (Dell); 250GB disk/node (Sun); 160GB

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disk/node (IBM), and the efficiency using Myrinet 10Gbps high data throughput hardware having efficiency of 81 percent. This system also contains 120 TB of large-scale, high performance disk storage and is housed at Clemson’s Information Technology Center in a 24/7 monitored environment with proper power, cooling and physical security.

The Palmetto Cluster is made possible through a partnership between faculty and information technology administrators. A shared funding formula makes Palmetto available to the entire Clemson community on a first come, first served basis; faculty researchers who require predictable computational availability may purchase nodes with reserved priority. The university provides additional nodes, hardware infrastructure, and system administration support. This gives individual researchers high performance computing capacity previously unavailable at Clemson, and allows the university to compete for the research grants and contracts that are vital to Clemson’s goals as a major research university.

*High Throughput Computing – Condor:* A campus grid linking over 2600 CPUs distributed across 27 locations provides a loosely coupled high throughput computing resource for all faculty and students for computational needs. This grid utilizes Condor, a specialized workload management system that provides a job queuing mechanism, scheduling policy, priority scheme, resource monitoring, and resource management. Applications from several disciplines including civil engineering, economics and chemistry, have already benefited from this resources.

*Networks:* At the core of Clemson’s local area network are two fully-redundant, 10 Gbps-connected Cisco 6509s in diverse campus locations. These switches aggregate dual 1 Gbps or 10 Gbps connections from dual switch Cisco 3750 stacks that serve as building network distribution switches. These distribution stacks aggregate dual connections from the Cisco 3650s that connect to each end-user jack at 1 Gbps. This network design has no single points of failure in the core and distribution layers, is consistent across Clemson’s entire campus, is easy to troubleshoot, and behaves in a deterministic manner should link or equipment failures occur.

The C-Light Network is Clemson University’s connection to the national research community, via direct fiber between Clemson, Greenville, Atlanta and Charlotte, providing high speed access to the National LambdaRail, Internet2, and other national and international research networks. C-Light currently provides 16 individual 10 gigabit connections, but as a facilities-based network, it can be easily reconfigured to dedicate access as needed. C-Light is the first leg of the South Carolina Light Rail, the State of South Carolina’s fiber optic network. This resource brings to Clemson the infrastructure that faculty and researchers need collaborate with colleagues and access resources nationally and internationally, and ensures a competitive capability.
Network Operations Center (NOC): The Network Operations Center utilizes cutting edge technology, equipment, and monitoring tools to proactively monitor the network infrastructure and critical computing systems and services provided by CCIT to Clemson University and our affiliated organizations, overseeing functionality, capacity and performance. The NOC operates 24x7x365 to provide top level support and customer service to the university's research and academic communities and our affiliated partners.

Distance Education: Distance Education refers to credit-granting courses delivered to off-campus students/locations via technologies such as the Internet, video recording, digital satellite broadcast, videoconferencing, CD-ROM/DVD, and web conferencing. Distance Education courses may include both synchronous and asynchronous forms of instruction. CCIT provides support for all distance education in the forms of instructional design, course development, content development and end-user support for teaching & learning technologies.

Video Conferencing: CCIT provides videoconferencing broadcasts that allow for 2-way voice and video connections over the Internet (IP). Videoconferencing gives faculty and students the ability to interact in a virtual classroom. Multi-point conferencing provides the capability of connecting to multiple end points in the same conference.

Web Conferencing: CCIT provides web conferencing via the Internet. Web conferencing enables users to interact with other participants and attendees using either a web application or an application downloaded into their client machines. Web conferencing offers advantages over traditional room-based videoconferencing because applications such as collaborative web browsing, file transfer and application sharing are easily supported over the Internet.

Blackboard Learning Management System: CCIT provides a robust enterprise learning management system using the Blackboard Learning System. This suite of tools provides virtual classroom space, class authentication, content sharing, synchronous and asynchronous communication tools, testing, gradebook and other learning tools as well as workgroup space which can be used by departments and groups for project collaboration. Instructors can deliver part or all of a course online using these tools.

Library

The Clemson University Libraries hold more than 1.8 million items including books, periodicals, electronic resources, digital media collections, government publications and patents, musical recordings, maps and microforms. Resources including 3,593 print journal subscriptions, approximately 48,000 e-journals, more than 22,800 e-books, and more than 400 online databases. During the 2007-2008 fiscal year, the budget for electronic bases and journals was $3.8 million; $1 million for print periodicals; and $1.4 million for e-books, printed books, standing orders, and media.