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President's Report to Board of Trustees, 2005-2006

Clemson University

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BEYOND

ORIGINAL INSPIRATION

2005 - 2006
CLEMSON UNIVERSITY
PRESIDENT’S REPORT
"The diagram for many research universities is a huge graduate school and research enterprise surrounding an isolated undergraduate program. We are saying no to this traditional research university model and saying we will invent our own model with more bridges and fewer walls. In the process we are re-inventing the research university."

- James F. Barker, FAIA, President of Clemson University
There are many different ways to measure the worth of a college or university. You can look at the level of support it receives through research and private giving. You can also compare the credentials of the faculty and staff and consider the caliber of students who apply to and attend the institution. But this data only begins to sketch the profile of the soul of the university.

It is widely known that Clemson has achieved some important milestones this past year. We’ve taken a few steps further toward our 10-year goals, becoming a top-30 university and adding a Phi Beta Kappa chapter on campus. But what’s really amazing is that we’re achieving this progress while thinking beyond the standard definition of a top research university.

We have worked hard to become a great research university while working just as hard to stay true to our roots. Excellence in teaching, small classes and high graduation rates have always been and will remain our focus.

When comparing Clemson to other great research universities, we know we are different. Among the other public universities in the top 30, there is not another land-grant school with fewer than 17,000 undergraduate students and without a law or medical school.

We have set some lofty goals, and we’re achieving them, one by one. What you’ll find in the rest of these pages are tales about some of the ways we’re redefining a research university. These are stories that narrate how our students, alumni, faculty and staff are looking beyond original inspiration to impact our world with visions of what awaits beyond the perceived limits. It is the same vision that our founder, Thomas Green Clemson, passed along as he gave breath to a university that ensured a brighter future for the people of South Carolina.

I invite you to accompany us on this journey of exploration and see the future through the eyes of those who share the inspiration of the Clemson experience.

Sincerely,

James F. Barker, FAIA
President
Clemson University
"Clemson is helping to shape the future of logistics, and any model where industry and academia can partner ultimately results in strategic benefits for all involved."
- Tom Goudreau, Supply Chain Programs Director at Lockheed Martin

Clemson University has long honored the importance of technology and research in its curriculum. In our early days, we focused on developing better agricultural practices and making advances that would help the farmers of South Carolina bloom and prosper. As the world has entered a technological renaissance, time and scientific breakthroughs have transformed our lives, and Clemson has led the way toward the cutting edge. Today, we are seeing a bright future as a great public research university. We are partnering with top-tier companies and professionals who are leaders in their fields to discover the next advances that will impact our realm of understanding both on local and global levels.
"The only way to discover the limits of the possible
is to go beyond them into the impossible."

- Arthur C. Clarke, Profiles of the Future (Clarke's second law)
Clemson is receiving twice the level of research support of five years ago, totaling $136 million this past year. Initiatives such as Clemson University's International Center for Automotive Research (CU-ICAR) are attracting interest and investments from world-renowned companies and organizations including BMW, Michelin, Timken and SAE. This year, we plan to break ground on an Innovation Center at the Center for Advanced Materials in Anderson County. Our Center of Optical Materials Science and Engineering Technologies (COMSET) is there, generating more than $30 million in external funding, 25 patents and two spinoff companies since 2000. In addition, the National Research Foundation is funding the research of several Clemson professors and, most notably, selecting us to be a research site for the Center for Engineering Logistics and Distribution. This recognition has attracted corporate support from the likes of Lockheed Martin and others.

**Major automotive testing and research equipment**, valued at nearly $10 million, for the graduate engineering program at CU-ICAR gives students and faculty access to a unique world-class laboratory. MTS, Weiss, FEV, RENK, Carl Zeiss IMT Corp. and J&H Machine Tools Inc. are just a few of the companies that have contributed gifts to build an automotive facility like no other in the world.

**Dr. Thomas R. Kurfress** was named as the first endowed chair for CU-ICAR. Filling the BMW Manufacturing Chair, he also serves as director of the Carroll A. Campbell Graduate Engineering Center. Other chairs that have been filled are the Timken Chair in Automotive Design and Development, held by Dr. John C. Ziegert, and the Michelin Endowed Chair in Vehicular Electronic Systems Integration, held by Dr. Todd H. Hubing. There will be a total of four endowed chairs at CU-ICAR.

**COMSET** had its sixth anniversary this past year and celebrated being awarded more than $7.2 million in sponsored research over the last fiscal year. This figure does not include a production MCVD lathe valued at $894,100 from the 3M Corp. This gift, along with an existing optical fiber draw tower, positions COMSET as the academic leader in optical fiber materials research in the United States.

**The National Science Foundation** has declared that Clemson has one of the finest university Electron Microscopy (EM) labs in the country for viewing objects at the atomic and molecular levels. Hitachi High Technologies America Inc. provided money that, when matched with a grant from the South Carolina Research University Infrastructure Act, resulted in $3.3 million worth of new and updated electron microscopes for Clemson's EM lab.
"She replaces ambiguity and insecurity with self-confidence, and she brings value to students, employers and the department."

- Colleagues and former students of Nancy Leininger, senior lecturer in graphic communications and recipient of the Thomas Green Clemson Award for Excellence. She has worked at the University for more than 17 years and serves as the intern employer coordinator and curriculum chair for her department.

Once faculty and staff join the "Clemson Family," they are instantly welcomed to the spirit of support, respect and camaraderie that graces our campus. This is one reason why we hold our award as one of the "Best Places to Work in Academia," according to The Scientist, in such high esteem. By attracting the best faculty, we can attract the best students, ultimately resulting in a domino effect of academic excellence. Clemson pledges to support the hard work of our notable faculty and staff, to encourage their professional development, to evaluate their professional performance and to compensate them at nationally competitive levels.
"Education is not the filling of a pail, but the lighting of a fire."

- William Butler Yeats
Clemson added 100 new tenured and tenure-track faculty positions this year, resulting in a student-to-faculty ratio of 14:1. This is a great comparison in any school, but in a place where members of the faculty continually win top honors, this number packs quite a punch. It all comes down to the fact that Clemson students are engaged in their academic experience and receive individual attention. It's a small-college academic experience with the benefits of a major research university.

Karen Burg, one of Clemson’s leading researchers in bioengineering, received the AO (Arbeitsgemeinschaft für Osteosynthesefragen) Research Foundation’s inaugural research fund prize for her work in tissue-engineered bone replacement systems. The AO Foundation is recognized worldwide for its pioneering work and training in osteosynthesis. Burg also won the 2006 S.C. Governor’s Young Scientist Award for Excellence in Scientific Research.

Clemson chemistry professor Darryl DesMarteau received the prestigious 2006 Moissan Prize for his achievements in fluorine chemistry. His most recent work has focused on developing membranes for fuel cells currently used on the space shuttle and, possibly soon, in cars and at power plants. Awarded every three years, the distinguished international prize represents the highest recognition in fluorine chemistry.

Professor Jim Navratil is part of the International Atomic Energy Agency (IAEA) team honored with the Nobel Peace Prize for efforts to prevent nuclear materials from being used for weapons and to ensure that nuclear energy meant for peaceful purposes is used safely. Navratil worked with the IAEA’s Safeguards Analytical Laboratory in Austria, an arm of the United Nations that helps monitor nuclear activity in 145 nations. Two thousand samples of nuclear materials are analyzed there each year.

James Bottum, Clemson’s chief information officer and vice provost for computing and information technology, has been named one of Computerworld’s Premier 100 IT Leaders for 2007. He is also a member of the National Science Foundation’s Advisory Committee on Cyberinfrastructure.

Other figures include:
- 95% of the faculty are full time.
- 86% of the faculty have earned a terminal degree.
- 42% of class sections have fewer than 20 students.
- 10.7% of classes have more than 50 students.
"Creative Inquiry crosses boundaries between different majors and promotes teamwork. Problem solving carries far beyond the classroom and the single semester."

- Dori Helms, Provost and proponent for the introduction of the Creative Inquiry concept to the Clemson curriculum

Creative Inquiry, formerly known as "Undergraduate Research," includes carefully planned research projects that teach by allowing students to apply classroom learning to real-life situations. Led by a special task force of representatives from all academic colleges, these projects include hands-on research opportunities, require several semesters of dedication and give students and teachers a whole new world of learning environments. In fact, many students find that they have the freedom to travel around the state, the country and even abroad to gather and share information. Projects are integrated in almost every major with the goal of building students' capacities to find, analyze and evaluate information.
"Creativity is a type of learning process where the teacher and pupil are located in the same individual."

- Arthur Koestler
Since its introduction, Creative Inquiry projects have grown in number across all majors of study at Clemson. As of the 2007 spring semester, there are more than 200 new or ongoing Creative Inquiry projects studying scientific, mathematical, psychological, business and fine arts subjects, including research on the Creative Inquiry concept itself. Some project teams span various colleges, giving students a deeper concept of teamwork and specialization.

Some Creative Inquiry projects have resulted in scientific-based findings such as breast cancer cell research. A biological sciences undergraduate is working with a team to study the binding qualities of particular anticancer agents to develop therapeutics that can destroy cancer cells.

Other projects may establish a continuing service-learning activity such as the Clemson Challenger Baseball League, which enhances athletic skills and enjoyment for youth with disabilities. One of the students working on this project, a vocational technology major, developed a batting device for athletes with limited motor skills.

Students also create art such as The Decameron Project, an award-winning play that the student group eventually performed at the Kennedy Center and at the Fringe Festival in Edinburgh, Scotland.

Creative Inquiry projects also focus on the surrounding area, researching local folklore. Some even allow for international study such as a civil engineering endeavor that integrated the study of Australian hospital evacuation practices.
"I am a young, strong African American male, dedicated to perpetuating a sorely needed concept — men as role models in elementary schools."

And so begins the vision statement of Call Me MISTER®, a program that has inspired more than 200 African American men to enter the education field and foster learning, self-esteem and imagination in South Carolina’s elementary and middle school students. Call Me MISTER participants attend one of the 11 South Carolina two- and four-year colleges that take part in the program. Named for a line said by Sidney Poitier in the movie *In the Heat of the Night*, the project provides tuition assistance and an academic support system to help assure success. In addition, a cohort system is in place for social and cultural support.
Diversity is the one true thing

we all have in common.

Celebrate it every day.”

- Anonymous
In 2000, 25 students in the program received undergraduate teaching scholarships thanks to a $100,000 Use Your Life Award from Oprah Winfrey’s Angel Network. Since then, leaders from all over the country have expressed interest in starting their own Call Me MISTER programs.

By October of 2006, the next phase of Call Me MISTER was revealed. Director Roy Jones announced Project Middle Passage, funded by a $99,800 grant from the Lumina Foundation for Education’s McCabe Fund. Launched in January 2007 at selected schools in the Upstate, the project provides mentoring and tutorial services for about 100 boys in grades 6-8. It will also encourage them to consider post-secondary education.

PEER
Programs for Educational Enrichment and Retention
PEER supports the academic achievement of minority students in the College of Engineering and Science. Along with test files and computer equipment, students may access internship information, research opportunities, graduate programs and general scholarship guidelines simply by visiting the PEER office. Personal counseling, career planning and résumé review services are also available.

WISE
Women in Science and Engineering
A program designed to encourage women to pursue science and engineering careers, WISE began in 1995 as an outgrowth of PEER. Since its fruition, several initiatives that support female students and special camps that reach out to girls have helped make technical majors more popular among the female student body. PRISM, a national engineering education publication, ranked Clemson fourth in the nation for 2005 in percentage of engineering Ph.D.s granted to women.

MEW
Math Excellence Workshop
Sponsored by the South Carolina Alliance for Minority Participation, Duke Energy and the College of Engineering and Science, the Math Excellence Workshop (MEW) has received national recognition for promoting superior mathematical understanding. Open to all incoming Clemson University minority students majoring in science, engineering or mathematics, MEW pays all expenses for committed Clemson students to take either calculus or pre-calculus classes in the second session of summer school. The students who choose to take the MEW challenge typically average higher grades than other students in their math classes.
"In our increasingly global, information-driven society, oral and written communication skills continue to be vitally important to success. [This program] provides students in all majors at Clemson with the communication abilities to make a difference in their own lives and the lives of others."

- Art Young, Robert S. Campbell Endowed Chair and founder of Clemson’s Communication Across the Curriculum Program

Founded in 1987 when Dr. Arthur P. Young became the Robert S. Campbell Chair in Technical Communications here at Clemson University, Communication Across the Curriculum (CAC) is a universitywide initiative to improve the communication abilities of all Clemson students. Originally called Writing Across the Curriculum, CAC broadens the focus of communication to include oral and visual modes of contact to promote critical thinking, collaboration and problem solving within and across the disciplines. Dr. Young has also initiated projects involving poetry and digital communication across the curriculum.
“Self expression must pass
into communication
for its fulfillment.”

- Pearl S. Buck
The Clemson Class of 1941 made a $1 million pledge at their 60th class reunion to create a home for the Class of '41 Studio for Student Communication. The first of its kind in the country to provide facilities for both teaching and research, the studio gives students of all disciplines the chance to spend less time taking tests and listening to lectures and more time engaged in their studies through speeches, computer-assisted presentations, writing and keeping journals.

Art Young works in tandem with the English and engineering departments to foster the importance of CAC across the colleges at Clemson University. He is co-editor of Teaching and Learning Creatively: Inspirations and Reflections, an anthology of creative works by more than 50 Clemson students with accompanying reflections by their teachers. Dr. Young has served as a consultant of CAC to more than 70 colleges in the United States and abroad.

The R. Roy and Marnie Pearce Center for Professional Communication serves as headquarters for CAC. A major goal of the Pearce Center is to prepare students for their chosen professions by familiarizing them with communication practices and technologies in the workplace. It is home to state-of-the-art facilities that involve students in authentic communication projects and enhance teaching with multimedia technology.

With the help of the provost's office, the Clemson Digital Portfolio Project grew rapidly in the 2002-2003 academic year. Since 2006, Clemson students have been required to maintain ePortfolios that show how they learned each of their general education competencies.

For five consecutive years (2002-2006), U.S. News & World Report has named Clemson University as one of the top universities in the country for promoting writing in the disciplines. In 2000, TIME magazine recognized Clemson University as "Public College of the Year" based on our CAC program. Most recently, as an international leader in communication-skills education, Clemson University hosted the Eighth International Writing Across the Curriculum Conference in May 2006.
Clemson University was founded by Thomas Green Clemson to serve as a “high seminary of learning” for the people of South Carolina. Originally a military college that specialized in agriculture, Clemson has grown into one of the nation's top public research institutions. The College started with 446 cadets. Today, Clemson enrolls about 17,000 students who select from 70 undergraduate and 100 graduate degree programs offered by five colleges: Agriculture, Forestry and Life Sciences; Architecture, Arts and Humanities; Business and Behavioral Science; Engineering and Science; and Health, Education and Human Development.

Christen Smith
Senior, Health Science & Economics
2006 Rhodes Scholarship Finalist
2006 Truman Scholarship Finalist
2006 Phil Prince Student Award
Golden Key National Honor Society
Phi Kappa Phi
"The mind, once stretched by a new idea, never regains its original dimensions."

- Oliver Wendell Holmes
Once students become part of the “Clemson Family,” they have the support of a great community, faculty and staff who identify and fulfill various needs and learning initiatives. Many call this the “Clemson Experience,” while others refer to it as the “Clemson Edge.” It means Clemson is committed to developing the whole student by enriching experiences with leadership opportunities, intramural sports, learning assistance and much more.

In 2006, *U.S. News & World Report* noted Clemson as one of the nation’s top-30 public institutions. Shrinking class sizes, a lower student-to-faculty ratio (14:1) and increasing retention and graduation rates have all contributed to this honor. Plus, this year’s freshman class has the second highest SAT average in Clemson’s history, and nearly half were ranked in the top 10 percent of their high school class. Results of the 2006 National Survey of Student Engagement indicate that most freshmen and seniors consider their educational experience at Clemson as good to excellent and report that they would attend Clemson again if given the opportunity to start over at any institution.

One of the latest opportunities for Clemson students is our new Phi Beta Kappa chapter. The Phi Beta Kappa Society, America’s oldest and most prestigious academic honor society, promotes excellence in the liberal arts and sciences on campus and in the broader world. Its campus chapters induct the most outstanding arts and sciences students at America’s leading colleges and universities.

Clemson’s living and learning communities give students the opportunity to access academic and cultural support right at home. Students have several on-campus housing choices, including WISE (Women In Science and Engineering), RISE (Residence in Science and Engineering) and Clemson’s First Year Experience. The latest living and learning community started this fall; 27 freshmen moved into the Civics and Service House for students who are focused on public service.

Clemson’s Academic Success Center earned international acclaim as the Outstanding Supplemental Instruction Program during the Fourth International Conference on Supplemental Instruction in Sweden. Honor graduate Anne “Katie” Abole was also named Supplemental Instruction Leader of the Year for her work in the center.

The Academic Success Center opened in 2001 and serves as one of the first lines of defense against withdrawals and failures, especially in the areas of math and science. It’s also a great resource for students seeking to keep their scholarships. Tutoring sessions, supplemental instruction and academic skills workshops are provided. Nearly 15,000 students have received supplemental instruction at the center, with an overall student body participation rate of 62 percent.

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"You will have lots of opportunities as Clemson graduates, but nothing is more satisfying than coming back to Clemson to participate in alumni activities."

- Richard McMahan, Class of 1954 and recipient of an honorary Doctor of Humanities degree at the spring 2006 commencement

In 2006, Clemson sent out more than 3,000 new graduates with the hopes that they would change the world and make it a better place to live. These new graduates join the influential group of Clemson alumni, 113,000 living members strong, as they become role models for future Tigers. Many of our alumni have risen to the tops of their fields and continue to experiment, lead and learn in the world's laboratory. And, Clemson graduates often become Clemson donors, experiencing the joy of giving back by sharing their experience and contributing new resources to prepare the next generation of Tigers to meet the challenges of our ever-changing world.

Ed Sutt
Clemson alumnus, Inventor of the HurriQuake nail, winner of Popular Science's 2006 Innovation of the Year
"A college degree is not a sign that one is a finished product but an indication a person is prepared for life."

- Rev. Edward A. Malloy, Monk’s Reflections
It was 1995, and Hurricane Marilyn had just ripped the island of St. Thomas to shreds. That's when Ed Sutt (M '96, PhD '00), a Clemson University graduate student, started to put it all together. Armed with a background in carpentry, an education in civil engineering and a connection to Clemson's Wind Load Test Facility, Sutt (aka Dr. Nail) re-examined a basic object that hadn't changed in hundreds of years and developed Popular Science's 2006 Innovation of the Year: the HurriQuake Nail. With a fastener that boosts sturdiness against earthquake forces up to 50 percent and doubles resistance to high winds, Sutt is helping victims of hurricanes and earthquakes rebuild with confidence — all while adding just $15 to the material cost of an average house.

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Language and international trade graduate Erin Reindl ('98, M '99) lives in Vienna, Austria, where she's head of the think tank and public relations department of JWT Advertising Agency, one of the world's largest advertising agencies, for Central and Eastern Europe. She also teaches marketing at a university in Vienna.

Science and physics teacher Pat Welsh ('75, M '82) received the 2006 national award for Disney High School Teacher of the Year. He was also named Aerospace Education Foundation's National Teacher of the Year. He teaches at Daniel High School in Central.

When Clemson was looking for a head of the new Automotive Safety Research Institute at CU-ICAR, an alumnus instantly came to mind. Kim Alexander ('88, M '92, EdD '06), who became paralyzed after a car accident during her senior year in high school, blends her personal experience with her extensive Clemson education to lead nationally and internationally recognized researchers, educators and practitioners in a variety of disciplines to improve the safety of the automotive environment.

Milton W. and Betty M. Holcombe of Dallas, Texas, committed $5 million to establish both the Milton W. Holcombe Electrical and Computer Engineering Department and the Milton W. and Betty M. Holcombe Chair in Electrical and Computer Engineering. They were the first inductees into the Trustee Oak Society, a recognition for cumulative lifetime contributions of $5 million or more.
Clemson at a Glance

Total Enrollment Fall 2006

- Enrollment: 17,309
- Undergraduate: 14,176
- Graduate: 3,133

Student-to-Faculty Ratio: 14:1
Full-time Instructional Faculty: 1,392
Instructional Faculty with Ph.D. or Equivalent: 86%

Freshman 2006 Profile

- AAH - College of Architecture, Arts and Humanities: 486
- BBS - College of Business and Behavioral Science: 526
- CAFLS - College of Agriculture, Forestry and Life Sciences: 605
- CES - College of Engineering and Science: 898
- HEHD - College of Health, Education and Human Development: 298
- TOTAL: 2,813

Graduate School Profile 2006

- AAH - College of Architecture, Arts and Humanities: 379
- BBS - College of Business and Behavioral Science: 382
- CAFLS - College of Agriculture, Forestry and Life Sciences: 408
- CES - College of Engineering and Science: 1,000
- HEHD - College of Health, Education and Human Development: 964
- Nondegree: 4
- TOTAL: 3,137

Rank in High School Class (%)
- Top 10: 47%
- Top 20: 70%
- Top 50: 97%

Middle 50% Range of scores
- SAT: 1140-1290
- ACT: 24-29
- S.C. Residents: 66%

Graduate Enrollment
- Master's: 1,838
- Doctoral: 1,008
- Unclassified: 291
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