

**The Chancellor's Report** 

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September 2017

**Record-breaking Philanthropy**

NC State saw incredible growth in terms of donations to the university for the 2016-17 fiscal year. The university received \$224.8 million in gifts and pledges, the highest one-year giving total in NC State history and a 39% increase over the 2015-16 fiscal year. These donations have created 71 new scholarships and fellowships and established 11 new distinguished professorships. An additional \$57.6 million was marked for new commitments designated toward teaching and research facilities.

**NC State Earns High Praise in *Money Magazine* Survey**

NC State was highlighted as one of the best colleges for the money on *Money* magazine's annual survey, "2017 Best Colleges for Your Money." The survey ranked more than 700 schools based on enrollment data and student outcomes collected from the top colleges and universities in the United States. The larger list was culled in an online article to determine the best college for the money in every state. NC State was chosen as the best school in North Carolina for the money, earning it a place among other prestigious private and public institutions across the country.

**NC State Recognized for Diversity**

NC State was featured in the newest *Diverse Issues in Higher Education* rankings. The list highlighted the top 100 institutions award bachelor's, master's and doctoral degrees to African-American, Asian-American, Native American and Hispanic students across all disciplines. NC State made the list for bachelor's degrees conferred to Asian-American students in the 2015-2016 data set. NC State was also recognized for master's degrees conferred to Native American students in the 2015-2016 data set.

**NC State Cited for Work-Life Balance**

NC State was cited by Glassdoor.com as one of 11 universities with a positive work-life balance as determined by current and former employees. NC State rated a 4.1 (on a scale of 1-5).

**Gregg Museum of Art and Design's Permanent Home**

On August 26, 2017, the Gregg Museum of Art and Design held a ribbon-cutting ceremony as part of a public grand reopening in its permanent home, the historic Chancellor's residence. The residence has been completely renovated and updated, and now includes a 15,000-square-foot LEED-certified expansion that houses most of the exhibits. Guests explored the museum's three opening exhibits and took docent-led tours of the new facility. Artists performed on-site live demonstrations, including pottery making by Jennifer Siegel and wood turning by Zach Gregory, both of the Crafts Center; and bamboo sculpting by Will Hooker, a professor of horticultural science.

**Record-breaking Commercialization and Entrepreneurship Support**

NC State's Office of Technology Commercialization and New Ventures (OTCNV) completed its most successful year ever, launching a record 15 startup companies, executing a record 169 licenses and options, and filing 241 patents in the past 12 months. And the trend is likely to continue. OTCNV expanded its Executive in Residence program to bring experienced entrepreneurs, investors and industry executives to campus to connect with university innovators and early stage startup companies. OTCNV was also part of a cross-campus initiative to launch an alumni investor network to support university-affiliated startup companies. The Wolfpack Investor Network, or WIN, was launched last fall to connect NC State alumni angel investors with promising university-affiliated startup companies. The network already has over 70 new members and has invested in six startups to date.

**Oracle Chooses NC State for Big Data Partnership**

Oracle has selected NC State as a university partner to pilot a new program that uses big data to solve grand challenges in everything from agriculture to textiles to engineering. Oracle will work with the university – and the College of Agriculture and Life Sciences (CALs) in particular – to launch a big data project that focuses on sweet potatoes. Using big data could accelerate the pace at which crops like the sweet potato are bred. It took 10 years to develop the popular Covington variety, and new technologies derived from big data could whittle that to just three or four years. “We have a lot of scientists working on sweet potatoes, and each one is creating a data set,” explained Steve Lommel, CALs associate dean for research and director of the North Carolina Agricultural Research Service. “And the idea is to take all these disparate data sets and find patterns and solve problems.”

**Researchers Create “Microbot Origami”**

Researchers at NC State and Duke University have developed a way to assemble and pre-program tiny structures made from microscopic cubes – “microbot origami” – to change their shape when actuated by a magnetic field and then, using the magnetic energy from their environment, perform a variety of tasks – including capturing and transporting single cells. The findings pave the way for microbots and micro-origami assemblies that can serve as cell characterization tools, fluid micromixers, and components of artificial muscles and soft biomimetic devices.

**Collaborative Research to Protect from Mosquito-borne Diseases**

A team of researchers from NC State's College of Textiles, College of Natural Resources, and College of Agriculture and Life Sciences are working on creating materials that resist insect bites. The team has developed an insecticide-free, protective, comfortable and breathable clothing linen that defends against biting insects. These products have proved to be better than 98% effective under extreme mosquito exposure. Further research is being conducted to investigate potential applications of the linen, specifically a line of maternity wear to protect pregnant women from exposure to mosquito-borne diseases like the Zika Virus.

**Accomplishments Report | July 2016-June 2017**  
Randy Woodson, Chancellor of North Carolina State University

**Strategic Planning**

**Goal 1: Student Success**

**While balancing access with quality, NC State must ensure that our students make timely progress toward an NC State degree, and along the way, must provide educational opportunities that inspire them to lead, to serve, to challenge, to take responsibility, to build problem-solving skills, and to engage with complex problems.**

- Over the past five years, first-year applications for admission increased 32 percent. In keeping with this trend, competition for a spot in the freshman class increased again this year. After receiving 26,733 applications, NC State admitted 4,658 of this year's freshmen applicants, with an additional 465 in the university's first spring enrollment. The incoming freshmen have an average weighted GPA of 4.54 and an average SAT score of 1308. Approximately 47% of admitted students were in the top 10 percent of their class. As always, diversity is a key objective in recruitment and enrollment efforts within the University. I am pleased to share that this year's class represents 98 North Carolina counties, 41 states, DC, Puerto Rico, Virgin Islands and 43 countries. Additionally, NC State enrolled 1,327 transfer students. In addition, 1,019 students were from rural NC counties and 514 were first-generation college students.
- NC State awarded a total of 5,871 degrees at Commencement on May 13, 2017. The degrees conferred included 96 associate's degrees, 3,845 bachelor's degrees, 1,652 master's degrees, 183 doctoral degrees, and 95 doctor of Veterinary Medicine degrees. In conjunction with the graduation ceremony in December 2016, NC State bestowed a total of 9,313 degrees in the 2016-2017 academic year. Over the past 5 years, degrees conferred increased 10 percent for bachelor's, 21 percent for master's, and 31 percent for doctoral.
- Over the past five years, first-year retention rates increased by four percentage points and second-year retention rates have increased by six percentage points. Our increased focus on student success results in more students continuing through to graduation. In the past five years, graduation rates have increased, with the four-year graduation rate increasing by 12 percentage points. In the same timeframe, students' time to degree has decreased.
- NC State has also been recognized as being an excellent value for students. The university was listed as "Best college for your money in North Carolina" by *Money* magazine, a top 10 best value among public U.S. universities by *U.S. News & World Report*, and #1 for return on student investment among NC public universities by Payscale.com.
- To insure NC State remains accessible, we have also concentrated on enhancing the transfer student pipeline. Thanks to an expansion of private support, the Goodnight Scholars Program accepted its first class of transfer students, providing a full scholarship to 10 NC Community College students with financial so they can continue their education at NC State and complete their STEM degrees. The Student Transfer Enrollment Advising and Mentoring (STEAM) program in the College of Agriculture and Life Sciences makes higher education more accessible to rural

students, and the CONNECT program is designed for transfer students interested in the Forestry and Environmental Resources degree programs. Participants in these programs take a summer session at NC State, then their first year of coursework at an NC Community College or other institution. While completing their coursework outside of NC State, students are supported through mentoring and academic advising to ensure that the credits they receive will apply toward their degree at NC State. The success of these efforts is shown in the 25-percent increase of NC Community College transfer applications in the past five years (Fall 2011-Fall 2016).

- NC State students have embraced the Think and Do mentality and have been recognized with a number of prestigious scholarships and fellowships, including: a Churchill Scholarship; five Fulbright Grants; a Truman Fellowship; an Astronaut scholarship; and NC State's first-ever Newman Fellowship. In addition, 25 students won NSF research fellowships. Students from each college are being recognized for their scholarship:
  - Ashle Page, a recent graduate double majoring in Chemical Engineering and Polymer and Color Chemistry, was named a 2017 Newman Civic Fellow for her history of outstanding service and leadership. Page is NC State's first ever Newman Fellow and was one of only 273 students nationwide to receive this honor.
  - Christopher Cooper was named a 2017 Churchill Scholar, NC State's second ever recipient of this prestigious award. He plans to pursue a one-year master's degree in chemical engineering and biotechnology at the University of Cambridge beginning in the fall of 2017.
  - Hanan "Alex" Hsain, a junior studying materials science and engineering, was awarded a 2017 Truman Scholarship. She plans to use the award to pursue a Ph.D. in materials science engineering or electrical engineering in order to further her goal of becoming a leader in sustainable energy development.
  - Including the six recipients this academic year, 67 NC State students and alumni have been awarded Fulbright grants since its inception in 1946, with 27 of those awards coming since 2012.
  - Sam Jasper, a senior and double major in textile engineering and chemical engineering was named an Astronaut Scholar for the 2016-2017 academic year and received a \$10,000 scholarship from the Astronaut Scholarship Foundation
  - Aisha Al-Qimlass, a doctoral candidate in counselor education, received a grant from the Kuwait Foundation for the Advancement of Sciences. The \$16,000 grant will help fund her dissertation research project, "Islamic Feminism and the Career Development of Kuwaiti Women."
  - College of Veterinary Medicine student Laura Johnson won second place in the American Veterinary Medical History Society's annual Smithcors Student History Essay Contest.
  - College of Textile students Jose Gonzales and Yuxin Zhu won first place in the 2016 Association of Textile, Apparel & Materials Professionals "Concept 2 Consumer" Student Merchandising Competition for their line, One Wear.

- Ph.D. candidate Alsayed Mashaheet's poster presentation at the American Phytopathological Society's annual meeting was among five winners of the 2016 APS *Phytobiomes* Journal Poster Award.
- A team composed of three Poole College of Management seniors won third place in the select Deloitte SAP Co-Innovation Event. Alexandra Shrader, Morgan Wilson and Taylor Rogan were tested on their ability to apply what they have learned through their undergraduate education to hypothetical situations. The SAP-sponsored event challenges students to think critically and creatively about problems that face many business ventures.
- Ph.D. candidate Betty-Shannon Prevatt received the American Public Health Association's Mental Health Section's 2016 Kenneth Lutterman Student Award. This award recognizes the best student paper submitted to the Mental Health Section each year.
- Evan Lowder, a Ph.D. candidate in the Applied Social and Community Psychology program, was awarded the American Public Health Association's Disability Section's Student Incentive Award. This honor recognizes exceptional student research abstracts submitted to the Disability Section each year.
- Fourth year Fashion and Textile Design Student Lisa Hoang presented her fashion line on the main stage at New York Fashion Week alongside top designers like Christian Siriano and Vera Wang.
- Eight Fashion and Textile Management students received scholarships from the YMA Fashion Scholarship Fund. Jayce Arnette, Ashley Casanave, Morgan Franklin, Cassidy Hahn, Monica Mayer, Ali Sulder, Megan Stitt, and Danielle Van Pelt were all recipients.
- Ten NC State students enrolled in Professor Alice Lee's Microbiology 360 class won the Center for Disease Control's "Do Something about Antibiotics Challenge" for their efforts in educating the public about the dangers of antibiotic resistance. Students developed and participated in a range of activities to spread awareness, including a symposium at The Natural History Museum in Raleigh, a mural in the Free Expression Tunnel, an information table at Talley Student Union, and a mannequin challenge video posted to YouTube.
- Troy K. Weaver, a doctoral student in educational administration and supervision in the College of Education, was selected as a fellow in the University of Notre Dame's 2017-2018 Reform Leaders Summit.
- A team of NC State students was one of eight finalists in NASA's Mars Ice Challenge, a competition prompting researchers to design and build a prototype of a drill capable of extracting and purifying water from subsurface ice deposits. "Appetite for Ice" members Arthur Candido, Aman Patel, Saurabh Agrawal, Kevin Ley, Punnag Chatterjee, Danny Tyler, Raj Nikhil Gerard, Christopher Yoder, and Steven Giunta presented their prototype at the NASA Langley Research Center in June.

- Students from the Poole College of Management's accounting programs received recognition from the North Carolina Association of Certified Professional Accountants (NCACPA) for their essays on diversity in the accounting profession. Two recent graduates received first place scholarship awards while an additional nine Poole College and Jenkins Masters of Accounting students received NCACPA scholarships.
- Three students enrolled in Professors Tim Buie and Kelly Umstead's Industrial Design 300 studio were chosen as finalists in the Cradle to Cradle Project Design Challenge. As a component of the course, students are expected to submit a design project to a competition of the professors' choosing. The competition charged students with educating and empowering consumer goods manufacturers to be transformative in the development of their products based on material health and reutilization, renewable energy, water stewardship and social fairness. Sophie Wiseman-Floyd and Krista Smith were both named finalists, while Mallory Barrett earned first place.
- The Denali Design-A-Throw competition broke records this year, as did NC State's participants in the competition. The 2016 competition received a record-breaking 763 entries from 334 students representing 22 universities across the country. Since the competition began in 2012, NC State has had seven College of Textiles students selected as finalists. Claire Gibson, a 2016 graduate of the Masters of Textile program, received the top prize, marking her as the first NC State student to win the competition. Fellow NC State student Jamie Harvey won third place.
- NC State student Christian Rust spearheaded a campaign to install solar panels and a phone charging station at a Wolfline bus stop. Rust is a member of the NC State Stewards, a sustainability student leadership program. The NC State Sustainability fund awarded Rust a grant to install the charging station.

## **Goal 2: Scholarship and Research**

**NC State's research culture permeates every aspect of our essence as a university. It structures our thought, informs our teaching, and directs our engagement beyond the campus. It is the foundation on which we build an innovative learning environment that engages our faculty, undergraduates, and graduate students alike. NC State's research quality determines our impact on the work force, on the economy, on the advancement of knowledge, and on the human condition.**

- Over the past year, NC State faculty earned some of the world's most prestigious awards and accolades. These include the National Academy of Sciences Award in Molecular Biology, the Warren Alpert Prize, the Canada Gairdner Award, the Wolf Prize for Agriculture, the Global Energy Prize, the National Medal of Technology and Innovation, the Marcus Wallenberg Foundation Prize, and the Academic/Research Librarian of Year Award, among others. We also have 25 members of National Academies.
- Experts in their fields, our faculty have also garnered recognition for research productivity. This fiscal year NC State was ranked #3 in North American and #31 in the world according to a report on research "rising stars" conducted by the journal *Nature*.

- NC State has funded 36 new faculty startup packages and invested in supporting infrastructure. Our investments this year have totaled \$11.7 million.
- Faculty accomplishments positively impact NC State’s research mission, student experience, and reputation, and include:
  - A number of NC State faculty members were selected to the American Association for the Advancement of Sciences (AAAS) in recognition of their contributions to their fields of study.
    - Alumni Distinguished Undergraduate Professor of Physics and Associate Dean for research in the College of Sciences, John Michael Blondin was elected as an AAAS Fellow for distinguished contributions to astrophysics and physics education, particularly in supernovae and supernova remnants.
    - Professor Emeritus of Genomics, Plant Physiology and Horticultural Science, Steven D. Clouse was elected as an AAAS Fellow for distinguished contributions to the field of Plant Biology, particularly for pioneering studies of brassinosteroid signaling and plant receptor kinases. Clouse, who retired from NC State in 2015, is currently a program director in the Division of Molecular and Cellular Biosciences at the National Science Foundation in Arlington, Virginia.
    - Gertrude M. Cox Professor of Statistics, Anastasios A. Tsiatis was elected as an AAAS Fellow for distinguished contributions to survival analysis, statistical methods for clinical trials, causal inference and the broad fields of semiparametric models and dynamic treatment regimes.
  - Assistant professor of infectious disease in NC State’s College of Veterinary Medicine, Casey M. Theriot, received a \$1.5 million grant from the National Institutes of Health to fight bacterial infections. She is exploring new bacterial therapies to treat *Clostridium difficile* infections, which are some of the leading hospital-acquired infections in the United States. *C. difficile* infections affect more than 500,000 Americans annually and lead to the deaths of approximately 30,000 each year. Her lab aims to design targeted bacterial therapies to prevent gastrointestinal diseases like *C. difficile*, using a range of cutting-edge experimental technologies and animal models.
  - The Scaling Up Digital Designs (SUDDS) team, established by Professor Jere Confrey, focuses on creating educational tools and technologies that address the learning challenges facing today’s children. “Math Mapper 6-8,” a SUDDS tool designed for middle school mathematics teachers, received a \$3 million grant from the National Science Foundation.
  - Dr. Kenneth Adler, a professor of cell biology in NC State’s College of Veterinary Medicine, is working on a drug that has successfully stopped the spread of lung cancer in mice. Adler’s research into a protein called MARCKS has resulted in this promising technology. The MARCKS protein dictates cell shape and mobility, which allows manipulation of this protein to have an impressive effect on metastasis. In addition to cancer, positive experiments have been conducted with chronic bronchitis and acute lung

injury. Clinical trials for humans will begin in the coming year.

- Two researchers in the Department of Horticulture Science received the Agricultural Greater Good Initiative Award from the genomics company Illumina to facilitate their studies with sweet potato genetics. Dr. Craig Yencho and Bode Olukolu were given Illumina sequencing reagents to use in two projects that will utilize genomics-oriented research. These projects could potentially alleviate hunger, malnutrition and poverty around the world.
- NC State biophysicist Dr. Shuang Lim, graduate student Kory Green and former postdoctoral scholar Janina Wirth developed a nanoprobe that could allow researchers to more efficiently trace the movements of different proteins along DNA. Improved tracing capabilities will allow for more research and insight into the functionality of these proteins and their roles in DNA repair processes.
- Researchers from NC State and the University of North Carolina at Chapel Hill developed a new surgical tool that could significantly reduce the time required for doctors to treat blood clots. The ultrasound “drill” uses low-frequency intravascular ultrasound to break down blood clots that cause deep vein thrombosis. This design is the first ultrasound drill that can be aimed straight ahead, significantly increasing the efficiency of treatment.
- Joint research conducted by faculty from NC State and Nanjing University resulted in the production of an “ultra-thin” sound diffuser. The new model is 10 times thinner than the widely used diffusers currently found in recording studios, concert venues, and movie theaters. Sound diffusers are installed primarily to reduce echoes and improve the quality of sound. The new design uses less material, which would reduce cost of production and take up less space.
- The Eat Smart, Move More, Weigh Less program developed by NC State in conjunction with North Carolina’s Division of Public Health made global headlines this year. Originally developed in 2001 to help address a rise in obesity and related-health issues, the groundbreaking program has helped over 17,000 people in North Carolina in the last 16 years. The program was adapted for online use with live instructors that led interactive classes in real time, a first in the online weight-loss program industry. Professor Carolyn Dunn, head of NC State’s Department of Agricultural and Human Sciences and Extension nutrition specialist, conducted research to design this program, which has gone on to serve as a model for other online health programs.
- A team of researchers from NC State and the University of North Carolina at Chapel Hill published research on the parallels between human and pig knees at varying stages of development, a finding that will advance research on injury treatment in young people. A previous study deduced that adult human knees and adult pig knees were similar enough to serve as a model for developing new tools and techniques, but little was known about the possibility of using pig knees as models for injuries in children and young adults. With these new findings, research and methodologies can be tested and developed for treatment in younger patients.
- Dr. Sarah Desmarais is leading a team of researchers in conjunction with the Wake County Sheriff’s Office to study the intricacies of the jail’s current practices regarding

inmates with mental health issues. They will use their findings to suggest changes and improvements to the current system that will benefit those with mental health problems and be cost-effective for the county.

- NC State researchers Mehmet Ozturk, Michael Dickey and Daryoosh Vashae designed a flexible thermoelectric energy harvester that has the potential to rival the effectiveness of existing power wearable electronic devices using body heat as the only source of energy.
- The American Psychological Association awarded Tom Hess the Baltes Distinguished Research Achievement Award for his research on adult development and aging. This is the most prestigious award offered by the APA and serves to recognize researchers with distinguished careers of exceptional theoretical and empirical contributions to the psychological science of aging.
- Dr. Louis Martin-Vega, the dean of NC State's College of Engineering, assumed the presidency of the American Society of Engineering Education for the 2016-2017 term. He will serve as president for one year and as immediate past president for an additional year.
- NC State assistant professor of plant and microbial biology Dr. Xu "Sirius" Li was a winner of the Phytochemical Society of North America's Arthur C. Neish Young Investigator Award for his work researching secondary metabolites in plants.
- Dr. E. Allen Foegeding, a William Neal Reynolds Distinguished Professor of Food, Bioprocessing and Nutrition Science received the Nicolas Appert Award from the Institute of Food Technologists.
- Dr. Nancy Allbritton, Kenan Distinguished Professor and head of the UNC-NC State Joint Department of Biomedical Engineering, received the 2016 Award in Chemical Instrumentation from the American Chemical Society's Division of Analytical Chemistry.
- Dr. Veena Misra, Professor in the Department of Electrical and Computer Engineering and Director of ASSIST, was named the 32nd recipient of the R. J. Reynolds Tobacco Company Award for Excellence.
- Professors Frank Buckless, Kathy Krawczyk and Dixon Hughes in NC State's Poole College of Management received the Innovation in Accounting Education Award from the American Accounting Association for their use of Second Life to provide hand-on learning experience for students. Second Life is a virtual reality platform that affords students the opportunity to experience real-world scenarios related to warehouse auditing without disrupting the daily work of industries.
- Dr. Ruth Gross, professor and Head of the Department of Foreign Languages and Literatures, was awarded the Department of the Army's Commander's Award for Public Service due to her influential role in establishing the Language Training Center.

- Dr. Steven E. McKeand, Professor and Director of the Tree Improvement Center, was awarded the Governor James E. Holshouser Jr. Award for Excellence in Public Service for his outstanding dedication and support of public service.
- Dr. David Marshall, a U.S. Department of Agriculture scientist and a professor in NC State's Department of Entomology and Plant Pathology, received the 2016 Abraham Lincoln Honor Award in global food security from USDA Secretary Tom Vilsack. Dr. Marshall worked to establish a cultivar of wheat with resistances to common pathogens in Pakistan – a country where wheat is the leading crop and resistance was nearly nonexistent.
- Fay Cobb Payton, Ph.D., a professor of information technology at NC State's Poole College of Management received the 2016 Educator of the year Award from the North Carolina Technology Association.
- Dr. John Meitzen, an associate professor in NC State's Department of Biological Sciences, received the Society for Neuroscience's Next Generation Award. This award recognizes members who have made outstanding contributions to public communication, outreach and educational experiences regarding neuroscience.
- Dr. Rodolphe Barrangou won a series of awards and recognitions for his work with CRISPR. He received the Canada Gairdner International Award, the Warren Alpert Prize, and the National Academy of Sciences Award in Molecular Biology.
- Professor Jere Confrey was named a 2017 Fellow by the American Educational Research Association. This distinction is the program's highest honor to recognize researchers whose work contributes to education.
- Dr. Francis Ligler, a Lampe Distinguished Professor in the UNC-NC State Joint Department of Biomedical Engineering, was one of the 15 inductees into the National Inventors Hall of Fame for 2017. Ligler is NC State's third Hall of Fame inductee, tying us with Stanford in second place for the number of living members of the Hall of Fame who are affiliated with universities in the United States.
- Dr. Orlin Velev in the Department of Chemical and Biomolecular Engineering was named a Fellow of the Materials Research Society.
- NC State College of Engineering professors Dr. Jagdish Narayan and Dr. Paul Turinsky were chosen as members of the National Academy of Engineers.
- Professor Stanley Baker won the Ella Stephens Barrett Excellence in Leadership and Counseling Award from the North Carolina Counseling Association.
- Dr. Maria Oliver-Hoyo, an Alumni Distinguished Undergraduate Professor of Chemistry, was announced as a winner of the 2017 Excellence in Teaching Award from the UNC system Board of Governors.
- Dr. Carla Barbieri, an Associate Professor in Equitable and Sustainable Tourism in the Department of Parks, Recreation and Tourism Management, was named the 2017

Emerging Scholar of Distinction Award from the International Academy for the Study of Tourism.

- NCSU Libraries Associate Head of Acquisitions and Discovery for Serials Kristen Wilson received the 2017 HARRASSOWITZ Award for Leadership in Library Acquisitions.
- Dr. Ron Sederoff, forestry professor and founder of the Forest Biotechnology Group at NC State, was awarded the 2017 Marcus Wallenberg Foundation Prize. This prize recognizes, encourages and stimulates scientific achievements that contribute significantly to strengthening knowledge and technical development within the fields of importance to forestry and forest industries.
- Thanks to our demonstrated expertise, NC State is one of two universities to lead two NSF Engineering Research Centers. The FREEDM Systems Center is working to create distributed energy resources that intelligently manage power using advanced power electronics. The Center for Advanced Self-Powered Systems of Integrated Sensors and Technologies (ASSIST) develops nanotechnology-enabled energy harvesting and storage, ultra-low power electronics, and sensors to create battery-free, body-powered, and wearable health monitoring systems.
- Last year NC State received \$407 million in extramural research awards, a historical high, to be dispersed over multiple years to 2,833 projects.
- Centennial Campus Partners opened 13 new offices bringing the total number of Partner employees on campus to 4610, a 29% increase from last year. The Office of Partnerships and Economic Development facilitated the signing of a Memorandum of Understanding (MOU) between NC State and the City of Raleigh to collaborate on smart city initiatives and assisted in 60 North Carolina economic development projects, an increase of 20% from the previous year.
- Our research expenditures were \$489 million for fiscal year 2016, a 5% increase over fiscal year 2015. The Proposal Development Unit supported the development and submission of 44 large-scale, interdisciplinary team proposals that resulted in \$29.9 million in awards with another \$102.3 million requested still pending. Since 2008, NC State total research awards have increased by 89.7%.
- The Association of University Technology Managers ranked NC State in the top five for technology licensing among US universities without medical schools, and the Milken Institute ranked NC State in the top 10 in the nation for technology transfer, excluding schools with medical research facilities.
- NC State's startups add \$1.2 billion annually to state's economy. Last year there were 15 startups, a record 169 licenses and options executed, and 241 patents filed. In the past five years, NC State has had more than 1,000 invention disclosures, 356 patents issued, 982 new patents filed, 728 commercialization agreements, and 57 startup companies launched.

### Goal 3: Interdisciplinary Scholarship Addressing Grand Challenges

**The history and mission of NC State call for us to address the major challenges that confront the world. Addressing complex problems with many disciplinary aspects requires assembling teams of scholars with varied skills and diverse perspectives. We maximize the impact of NC State's research by concentrating resources in areas where we have strategic strengths and by creating a culture of collaboration and interdisciplinarity that enriches not only our research activities, but also our teaching and engagement.**

- Researchers from NC State, the University of North Carolina at Charlotte, Virginia Commonwealth University and the University of Iowa conducted a study to determine ways to overcome the distinct gap between researchers and practitioners in the business field. They found that both practitioners and researchers expressed significant interest in the same eight business challenges. The results of this study could lead to better collaboration between business researchers and practitioners, which would in turn promote more efficient adaptation and integration of business ideas and practices between the two groups.
- A team of researchers from the Hong Kong University of Science and Technology and NC State studied the production and efficiency of organic solar cells and found that these systems have comparable efficiency to the fullerene-based solar panels widely used today.
- A partnership of NC State researchers and colleagues from the Mikocheni Agricultural Research Institute in Tanzania received a \$2.15 million grant from the Bill & Melinda Gates Foundation to support their study of Cassava Mosaic Disease. Cassava is a major food crop in African countries, accounting for more than one-third of human calorie consumption. Furthering our knowledge about the disease will lead to the development of containment and treatment methods, which in turn will lead to increased food security and economic stability for these regions that rely heavily on the Cassava plant.
- The Defense Advanced Research Projects Agency (DARPA) awarded a \$5 million grant to fund a research project that uses genetically engineered influenza viruses known as therapeutic interfering particles (TIPs) to combat the spread of influenza strains. TIPs will piggyback on functional viruses, wasting vital resources needed for virus replication. Since TIPs evolve and transmit as the viruses evolve and transmit, they could prove to be evolution-proof and effective against viral escape and resistance. Ruain Ke, an assistant professor of mathematics and member of NC State's Precision Medicine faculty cluster, will work alongside researchers from the University of Illinois at Urbana-Champaign, Duke University, Rutgers University, and Montana State University on this project. If this project proves successful, it could potentially have a greater impact on antiviral development for diseases like Zika, Ebola and HIV.
- A \$2.5 million grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture is funding a research project investigating how communities of microbes affect disease transmission. Charles Mitchell, James Umbanhowar and Corbin Jones from the University of North Carolina at Chapel Hill and Ignazio Carbone from NC State are studying the microbiome of tall fescue, one of the most important grasses in our region, and new technologies to discover and evaluate fungal taxa. The project directly supports the White House Office of Science and Technology National Microbiome Initiative that advances research into microbiome behavior and function.

- A recently published study conducted by university researchers from Clemson and NC State suggests that parks and greenways could play a role in reducing crime in large, urban areas. The in-depth study focused on Chicago neighborhoods along the Bloomingdale Trail, a 2.7-mile elevated greenway commonly known as The 606. Brandon Harris and Scott Ogletree of Clemson worked alongside Lincoln Larson, NC State faculty member in the College of Natural Resources, to analyze data on these neighborhoods in 2011 before construction of The 606 and again in 2015 after The 606 was opened. Their results showed that crime rates decreased at a faster rate in neighborhoods surrounding The 606 than in neighborhoods farther from it.
- A study conducted by researchers from NC State and Campbell University found that the most significant factor in limiting diet choices in “food deserts” is limited financial resources. Interviewees – even those without cars – reported that they traveled outside of their neighborhoods to do their shopping at supermarkets because the prices were significantly cheaper than the same goods sold at neighborhood stores. This provided valuable insight in the field, as these results conflicted with the common consensus that individuals in “food deserts” shop at the nearest store, which contributes to their lacking dietary habits.
- Researchers from NC State and the University of North Carolina at Chapel Hill have developed a new technique that uses modified insulin and red blood cells to create a glucose-responsive “smart” insulin delivery system. Their technique reduced blood sugar levels for 48 hours in a strain of mice with Type 1 diabetes. Further testing is needed before the technology can be adapted for clinical trials, but it offers the potential for a promising new diabetes control method.
- A team of researchers from NC State, Boston University and George Mason University developed a Bitcoin-compatible system that could significantly increase the privacy of Bitcoin transactions. Although designed to be anonymous, Bitcoin transactions have been largely decoded by experts and private companies. The TumbleBit system is a computer protocol that runs on top of Bitcoin. The system has three phases, each of which serve to complicate the process for potential trackers. Bitcoin users can still conduct transactions with a similar level of ease and efficiency when using the TumbleBit system.
- Dr. Denis Fourches and Graduate Student Jeremy Ash demonstrated that molecular dynamics simulations and machine learning techniques could be integrated to create more accurate computer prediction models. Such a “hyper-predictive” model could be used to quickly predict which new chemical compounds are promising drug candidates, a practice that could save time and resources for pharmaceutical companies and researchers.
- New faculty have been hired into clusters under the Chancellor’s Faculty Excellence Program (CFEP), a key driver of enhancing interdisciplinary scholarship at NC State. All of the clusters leverage existing strengths and have the potential to establish NC State as a national leader in their respective fields. The strategic investments for CFEP have attracted top faculty and graduate students from North Carolina and around the world, generated partnerships with government and industry, and garnered millions of dollars in external research funding.
- Last year, NC State have hired 12 new CFEP faculty for clusters including Leadership in Public Science; Global Water, Sanitation and Hygiene; and Visual Narrative. We spent approximately \$10 million in start-up packages and space renovation, and our investments to date have totaled \$30.5 million. We update a section of our website dedicated to CFEP ([facultyclusters.ncsu.edu](http://facultyclusters.ncsu.edu))

with the latest information on cluster achievements so the public can learn about the real-world challenges being researched, the diverse individuals involved, and their achievements.

#### **Goal 4: Organizational Excellence**

**NC State's standard of excellence applies to all faculty and staff and to all departments, institutes, centers, and units. Achieving excellence requires constant attention, self-assessment, inclusion, and the courage to change and adapt.**

- NC State's Office of International Affairs began accepting passport applications on behalf of the U.S. Department of State this year. Through the new Passport Services office in Witherspoon Student Center, students, faculty, and staff who plan to study abroad can apply for passports directly. Passport Services is also open to the general public and establishes NC State as the only institution of higher education in the triangle to offer the service.
- Supply Chain Management World, a cross-industry peer network and learning community serving supply chain practitioners, ranked NC State among the top 25 global supply chain universities. The rankings were based on the results of its 2016 Future of Supply Chain research study, which tasked approximately 1,100 supply chain practitioners to rank universities and business schools as marketers of supply chain talent. NC State was the only program in North Carolina to make the top 25, and while the reputation-based ranking naturally favored institutions with historical prestige in supply chain like MIT and Penn State, it also highlighted programs like ours that have earned a reputation because of their connection to industry.
- NCSU Libraries Copyright and Digital Scholarship Center created the Alt Textbook Project, which provides mini-grants and support for faculty to adopt, adapt or create free and open alternatives to textbooks. This was the first program of its kind in North Carolina and saved students \$250,000 in its first year of operation. The second round of projects is currently underway and predicted to save students over \$100,000 more. Not only does this resource ease the financial burden for students, it also aligns with the university's sustainability goals and provides access to educational resources to individuals across the nation.
- The NC State Faculty Ombuds Office extended services to NC State staff members as part of a pilot program for 2017, offering a confidential, independent, informal and impartial service for all SHRA and EHRA non-faculty. Since January of 2017, staff members have been able to schedule meetings with Ombudsman Roy Baroff as part of this program.
- The Annual Krispy Kreme Challenge was hosted by NC State's Park Scholars on February 4, 2017 and set new records for sustainability. Through the use of digital promotion, introduction of compostable cups, and implementation of clearstreams within the recycling/waste diversion plan, the event recycled 28,000 cups and boxes, diverting over 1,670 pounds of waste into compost and recycled materials. With more than 7,000 participants, the 2017 Krispy Kreme Challenge had more attendees than the previous year.
- NC State's College of Agriculture and Life Sciences received a \$1 million National Science Foundation S-STEM training grant to create a new master's program for students from underrepresented groups. The Interdisciplinary Biochemistry Graduate Program will provide tuition for 20 master's students in the Department of Molecular and Structural Biochemistry over

the course of five years. The grant was designed to promote interdisciplinary research and training in biochemistry applied to agriculture and human health. The program is slated to begin accepting students as early as Fall of 2018.

- The Andrew W. Mellon Foundation awarded NC State a \$414,000 grant to support the advancement of tools and techniques for developing and sharing large-scale visual content for research. The “Visualizing Digital Scholarship in Libraries and Learning Spaces” project will build upon NCSU Libraries’ pioneering work with large-scale, research visualization techniques. The grant will fund programs to cultivate these types of opportunities including a scholars-in-residence program that allows researchers to pursue creative projects in collaboration with librarians and a series of competitive block grants available for other institutions working on similar challenges related to digital scholarship in and for large-scale visual environments.
- NC State featured prominently in multiple issues of *Diverse Issues in Higher Education* over the past year based on research conducted by Dr. Rhonda Vonshay Sharpe of the Women’s Institute for Science, Equity and Race and data from the Integrated Postsecondary Education Data System:
  - #6 nationally for bachelor’s degrees awarded to African American students in engineering
  - #21 nationally for master’s degrees awarded to African American students in engineering, tied with Cornell, Southern University, A&M College and Texas A&M University-College Station
  - #6 nationally for bachelor’s degrees awarded to Native American students in engineering, tied with Northern Arizona University and Texas Tech University
- NC State’s Director of University Recreation Eric Hawkes was interviewed in *Campus Rec* magazine this fall. The twelve-page spread provided insight into NC State’s recreation and athletic facilities, highlighting the recent renovation projects, implementation of new practices and outstanding service to the students, faculty, and staff of NC State.
- NC State’s University Police Department introduced specially trained “person-borne” explosive detection dogs in fall 2016, making them the first police force in North Carolina to utilize such a unit. Labrador retrievers Reed and Ford work on campus daily in addition to special events and athletic meets on campus. Unlike typical bomb-sniffing K-9 units, Reed and Ford can work on the outside perimeter of events, detect the odor of explosives or gunpowder on an individual approaching the event, and track that individual through a crowd.
- Dr. Peter Askim, director of orchestral studies in NC State’s Music Department, received The American Prize’s Ernst Bacon Memorial Award for the Performance of American Music in January. Both of NC State’s orchestras are also finalists for the Vytautas Marijosius Memorial Award in Orchestral Programming. This award recognizes innovation in orchestral programming, as shown by projects like the Great Animal Orchestra, which combined a live orchestral performance with the sounds of animals recorded in their natural habitat and involved collaboration between eleven units within the university.
- The NC State Counseling Center won an Emmy Award from the National Academy of Television Arts & Sciences, Nashville/Midsouth Chapter for their “#StopTheStigma” video. The Counseling Center partnered with StoryDriven, a Durham-based storytelling firm, to produce the award-winning video. The video received an Emmy Award in the Public Services category, a

classification reserved for programs or specials on current issues of societal concerns, social ills, community or general public interest.

- NC State is in the process of creating and implementing a new electronic research administration (eRA) system. The project seeks to simplify and streamline research activities across the university. NC State has assembled an interdisciplinary group of faculty and staff members to facilitate this project, including a 20-member steering committee and other teams dedicated to communication, change management, project requirements and training. These teams are further divided into working groups focused on specific aspects of the project. Meetings, planning sessions and focus groups have provided feedback and insight over the past year, and the project is moving on to phase two. Vendor proposals have been evaluated and on-campus demonstrations will take place in fall 2017. The new system could go live as early as the end of 2018.
- NC State Dining's Rave! Events was announced as a silver recipient for the 2017 Loyal E. Horton Dining Awards given by the National Association of College and University Food Services (NACUFS). The silver, second place award came from the Large School division for a submission in the Catering – Online Menu category.

#### **Goal 5: Engagement and Partnerships**

**As the world has changed, NC State's reach has expanded beyond our borders and across the globe, challenging us to be locally responsive to the needs of our community and our state while globally engaged in solving the grand challenges facing our global community.**

- NC State and UNC Pembroke established a joint undergraduate degree program in August 2016. Students will spend three years at UNC Pembroke and two years at NC State before graduating with degrees from both universities. Graduates will have a degree in Physics from UNC Pembroke and a degree in either electrical or mechanical engineering from NC State.
- NC State's Northeast Leadership Academy (NELA) received funding from the Wallace Foundation's five-year, \$47 million initiative to redesign principal preparation programs. With the \$5.6 million charge, NELA will be able to extend its services to 16 school districts across the state, including Wake and Johnston County.
- A partnership between the College of Textiles and the American Heart Association of the Triangle called Hemline for Hearts prompted six designers from NC State to create apparel made entirely out of red paper hearts. The event took place at the end of January to start off American Heart Month in February and raise awareness of the issues surrounding women and heart disease. The live competition held at Crabtree Valley Mall allowed designers four hours to create their pieces before they were judged by a panel of local celebrities.
- NC State has hosted a number of "citizen scientist" projects this academic year, reaching out to people across nation and encouraging them to participate in university-sponsored research projects. Efforts like "The Great Pumpkin Project," which called on citizens to help document geographic variation in insects and microbes associated with certain food crops, have a two-fold function. They offer researchers an efficient means of collecting data over a larger location and engage the community in science.

- Joseph Brazel, a Jenkins Distinguished Professor of Accounting, and his research colleagues received an “Access to Audit Personnel Program” award from the Center for Audit Quality and the Auditing Section of the American Accounting Association. The award connects academics with audit practitioners who are willing to assist and participate in research projects.
- At the North Carolina Rural Center’s inaugural Rural Day event, North Carolina Cooperative Extension – a partnership among NC State University (NC State Extension), N.C. A&T State University, and federal, state and local governments – was engaging the community and gathering information to help develop best practices that will address the challenges facing North Carolina citizens.
- NC State’s partnership with VIB saw growth this year as members of the College of Agriculture and Life Sciences traveled to Flanders, Belgium to share research findings and further connections between the two institutions. Last year, NC State and VIB joined forces and established a partnership to promote growth in the plant biotech research sector in Belgium and in North Carolina. The trip served to connect researchers from NC State and VIB with similar interests and projects to gain insight from the work of others and establish a stronger networking connection.
- NC State’s Kara Allen-Eckard was chosen to co-chair a state working group funded by North Carolina’s Department of Health and Human Services, Division of Social Services (DSS). The group was formed in response to North Carolina’s lackluster performance in the Child and Family Services Review issued by the federal government. A community developer for NC State’s Center for Family and Community Engagement, Allen-Eckard serves alongside representatives from the Division of Social Services, family advocacy groups, nonprofit organizations, county social services departments and family members who have experience working with the child welfare system. The group seeks to revolutionize North Carolina’s child welfare system, beginning with establishing an advisory council that allows families to provide insight and feedback on the state’s performance in areas related to child welfare.
- The Triangle Venture Alliance, an investment alliance between angel networks at NC State, Duke University, the University of North Carolina at Chapel Hill, and NC Central University, made its first investment as an alliance. The group is sponsoring 410 Medical, an early-stage medical device company that has developed an innovative medical device that rapidly infuses life-saving fluids during medical emergencies. Before deciding to invest in 410 Medical’s LifeFlow Rapid Infuser, students from the network’s associate teams worked together to compile a comprehensive diligence report for the investment opportunity.
- NC State hosted the first-ever North Carolina Extension Master Gardener College, which saw more than 100 Extension volunteers from across the state gather on campus to learn and establish connections. The four-day event included workshops led by Extension specialists and NC State professors, tours of the university’s facilities, and a taste of life as an NC State student since participants ate in dining halls and stayed in dorm rooms. North Carolina’s Extension Master Gardener expects the college will be held biennially, with the state Extension Master Gardener Conference taking place every other year.

- NC State conducts world-class research, education and outreach. Students are engaged through service leadership and study abroad opportunities, and we have seen a 16% increase in students participating in study abroad opportunities over the past five years (Fall 2011-Fall 2016). More students than ever are participating in co-op activities, an increase of 63% in the same period. In addition, we have partnerships with more than 130 institutions around the world.

### **Advancement**

- In October 2016 NC State launched the largest and most significant philanthropic campaign in our history. The Think and Do the Extraordinary Campaign will enable us to strategically invest in areas such as the ones mentioned above to a far greater extent.
- While this goal is ambitious – less than 25 public US universities have completed a \$1.5 billion campaign – we are committed to its achievement.
  - As of June 30, 2017, we raised \$1.116 billion, or 72% of the \$1.6 billion goal.
  - As part of the Campaign, last year NC State achieved a record fundraising year generating \$224.8 million in new gifts and commitments – a 39 percent increase over the previous year. \$145.0 million of that record total was in cash receipts.
- In addition, by the end of the fiscal year the endowment value passed \$1 billion for the first time in the university's history, with a value of \$1.11 billion. Our endowment now ranks in the top 100 among public and private universities in total market value (# 94 out of 815).
- A successful Campaign represents hundreds of newly created scholarships and fellowships benefiting thousands of students; newly endowed faculty positions allowing us to attract and retain star faculty; access to the arts; and opportunities for our students to engage in hands-on and high-impact learning.
  - Campaign gifts created 71 new scholarships and fellowships in the last fiscal year alone, providing opportunity to thousands of NC State students for generations to come.
  - Eleven new professorships were also funded 2016-17, bringing the total number of professorships created throughout the Campaign to 70, allowing NC State to better recruit and retain top faculty.

### **Facilities**

- A new inter-faith prayer and meditation space opened this fall in Witherspoon Student Center. This marks the fourth space established on NC State campuses dedicated to respectful and quiet reflection and is another example of the university's efforts to promote inclusivity across campus.
- The renovation on Reynolds Coliseum was officially completed and the grand opening celebration was held in September 2016. The \$35 million project saw the preservation of Reynolds's history and spirit in addition to the introduction of new elements, including the NC State Athletic Hall of Fame and the Coaches Corner. Specific changes included shifting the court to the south end of the building, seats arranged closer to the playing surface, and building-wide air conditioning.

- The grand reopening of the Gregg Museum of Art and Design took place on August 26, 2017. The new facility features a LEED-certified addition of more than 15,000 square feet for gallery, event, storage and office space. Additional changes include on-site parking, a pedestrian walkway leading to Theater in the Park and the Pullen Arts Center, and indoor and outdoor spaces for educational and public programs. The renovations also provided an opportunity to incorporate inviting lawns, heritage trees, a historic formal garden and patio, and a future sculpture garden.
  
- NC State's Grounds Management team partnered with faculty, staff and students to implement pollinator gardens on and around campus.
  - With the help of Horticulture Professor Dennis Werner, Grounds Management employees installed more than 600 pollinator-friendly plants along Partners Way near Campus Drive on Centennial campus.
  - A smaller pollinator meadow is due for installation on Centennial Campus this fall under the guidance of horticulture graduate student Melissa Tinling with funding from the NC State Sustainability Fund.
  - A class of University Honors students partnered with Grounds Management and the Bayer Bee Care Center to research, design and plant a pollinator garden outside of Bagwell and Berry Halls on Central Campus.
  - This coming year, students will design and plant formal pollinator gardens at NC State's JC Raulston Arboretum and the newly renovated Gregg Museum of Art and Design.
  - The Lonnie Poole Golf Course on NC State's Centennial Campus became a habitat for the increasingly rare monarch butterfly thanks to a partnership between NC State and BASF. Approximately 750 milkweed plants and wildflowers were installed in low-traffic areas of the golf course.
  
- NC State's Nonwovens Institute opened their new facility on Centennial Campus in May 2017. The Nonwovens Institute is home to the world's first and only accredited academic program for interdisciplinary study of engineered fabrics. Faculty members from the colleges of Engineering, Textiles, and Natural Resources along with colleagues from other institutions offer expert knowledge in chemistry, mechanical and industrial engineering, bioengineering, chemical engineering, paper science and engineering, and fiber and polymer science. The Nonwovens Institute also serves as a source of economic development that helps bring new products to market.
  
- The senior design lab of NC State's Textile Engineering, Chemistry and Science programs was retrofitted with LED lighting this academic year. The 84 metal halide and fluorescent light fixtures were upgraded to high-efficiency LEDs with occupancy motion sensors. This project is expected to save \$4,700 annually in avoided energy costs.
  
- The Connect NC Bond is making two key infrastructure investments possible for NC State: Engineering Building Oval and Plant Sciences Research Complex. Both projects are on track, with The Engineering Building Oval expected to finish in June 2020 and the Plant Sciences Research Complex anticipated to be complete in June 2022. We provide information on the Connect NC Bond, Engineering Building Oval and Plant Sciences Research Complex online ([connectnc.ncsu.edu](http://connectnc.ncsu.edu); [www.engr.ncsu.edu/oval](http://www.engr.ncsu.edu/oval); [cals.ncsu.edu/agcomm/psi](http://cals.ncsu.edu/agcomm/psi)) to keep the citizens of North Carolina updated as to our shared investment. Private support is an essential part of

both of these projects and continues to progress well.

- The Case Commons Residence Hall and the Carmichael Addition and Renovation are also on track, and these will enhance students' experience on campus.

### **Legislative, Policy and Advocacy**

- On June 28, 2017, the State of North Carolina passed a \$23 billion state budget. The budget was largely positive for NC State as it did not have a management flexibility reduction in the first fiscal year and also funded several university priorities. Budget and legislative highlights include:
  - It includes a \$1,000 across-the-board salary increase for full-time SHRA university employees, a funding pool equivalent to \$1,000 for each State-funded EHRA FTE, and three vacation days for all full-time employees.
  - The budget has full funding for enrollment growth and directs the Board of Governors to base enrollment funding on verification of actual enrollment rather than projections.
  - It provides \$50.5 million for repairs and renovations that UNC General Administration will allocate to campuses.
  - It also includes \$1 million non-recurring for Faculty Recruitment and Retention and \$1 million non-recurring for the Research Opportunity Initiative. This funding will be given to the UNC System, and they will determine the allocations.
  - The budget provides \$2 million non-recurring funding for NC State's participation in the National Institute for Innovation in Manufacturing Biopharmaceuticals, or NIIMBL, in FY 2017-18.
  - Funding is included for NC State's Cooperative Extension, which includes \$700,000 continuing in FY 2017-18 and an additional \$100,000 continuing in the second year of the biennium.
  - There is funding for the Food Processing Innovation Center, to be housed at the NC Research Campus in Kannapolis. This is in partnership with the College of Agriculture and Life Sciences. The funded amount is \$5.1 million, \$700,000 of which is continuing.
  - Other special provisions that will affect NC State and the UNC System are requiring the Board of Governors monitor the creation of new positions over \$70,000 and any salary increase of more than 5% that would result in an annual salary of \$100,000 or greater.
  - The legislature also directs the Board of Governors to study equal opportunity policies at each campus.
- This year Chancellor Woodson completed his role as chair of the Association of Public and Land-Grant Universities' (APLU) Challenge of Change commission. Leading a group of researchers, professors and administrators from the United States, Canada and Mexico, Woodson led a large-scale, collaborative effort that calls on public and private partners to make critical contributions

towards sustainably feeding a growing population, aiming to achieve universal food security by 2050. The commission's work culminated in the May 2017 report, *The Challenge of Change: Engaging Public Universities to Feed the World*. By serving in this role, Woodson elevated NC State's reputation for innovatively tackling grand challenges, work embraced by the Emerging Plant Disease and Global Food Security faculty clusters and the Plant Sciences Initiative.

- As a result of NC State's reputation as a research powerhouse in personalized medicine and an economic driver in biotechnology, Chancellor Woodson participated in a panel at the Precision Medicine World Conference. Woodson highlighted our Precision Medicine faculty cluster, biotechnology workforce development, and economic impact.
- In the past year, Chancellor Woodson has also been the keynote speaker for the NC Chamber Conference on Education regarding how NC State responds to industry needs by graduating a job-ready workforce. I was a panelist at the African-American and Blacks in Higher Education Conference to highlight how NC State has increased graduation rates and decreased the completion gap. In May 2017, Woodson spoke at Nagoya University in Japan about NC State's land-grant mission and economic impact, and Shanghai Jiao Tong University in China about the APLU's Commission on Change and NC State's role in reducing food insecurity.
- Chancellor Woodson also participated in numerous alumni events in the past year to drive engagement with the university and build a greater network of advocacy. NC State's alumni continue to spur the university forward by promoting industry partnerships, student employment opportunities, and private giving.

### **Rankings and Recognition**

- *U.S. News & World Report*
  - NC State is ranked #3 in Graduate Veterinary Medicine
    - #92 for all universities nationally
    - #59 for best colleges for veterans
    - #62 for best value schools
    - #15 in Statistics
    - #25 in Graduate Engineering Programs
    - #11 in Online Graduate Engineering Programs
    - #7 in Online Graduate Computer Information Technology Programs
- *Princeton Review*
  - NC State ranked #33 out of 381 universities across the United States for its undergraduate game design program.
  - NC State was included on the list of "Colleges That Pay You Back" and received a score of 90 for return on investment. The score is based on challenging academics, affordability and strong career prospects for graduates.
  - NC State's Jenkins Professional Online MBA program ranked #9 on the list of Top 25 Online MBA Programs for 2017.
- *Kiplinger's Best College Values*
  - Kiplinger's bases its rankings on a combination of academics and affordability, citing test scores, admission and retention rates, student-faculty ratios, graduation rates and cost and financial aid as key factors. NC State ranked:
    - #18 for public Colleges In-State

- #9 for public Colleges Out-of-State
  - #76 in All Colleges
- *U.S. News Online Programs*
  - NC State ranked #6 for Graduate Information Technology
    - #9 for Graduate Engineering
    - #18 for MBA Program
- *The Economist*
  - The Jenkins MBA Program ranked 89 out of the top 100 MBA programs around the world and among the top 50 in the U.S. alone.
  - The Jenkins MBA Program was also placed at No. 24 among U.S.-based public institutions.
- *Forbes*
  - *Forbes* Ranked North Carolina State University as the following:
    - #20 for top STEM schools in the U.S.
    - #189 for top colleges
      - #48 in Public Universities
      - #87 in Research Universities
      - #35 in the South
    - #144 in America's best value colleges
    - #125 in America's Best Employers
- The American Society for Engineering Education ranked NC State as first in the nation in the number of female tenure-track/tenured faculty in Department of Computer Science in Colleges of Engineering.
- In the Milken Institute report titled "Concept of Commercialization: The Best Universities for Technology Transfer," NC State ranked 25 out of the 200 research institutions studied overall and in the top 10 for schools without medical research facilities. The list was divided into four categories, each of which put NC State towards the top of the list. NC State was ranked in the top 10 of each of the following categories when universities with medical schools are omitted:
  - #10 in licensing issued
  - #18 in licensing income
  - #21 in start-ups
  - #25 in patents issued
- NC State's Graduate Engineering Program ranked 11 out of 25 in the nation on the GraduatePrograms.com 2016 List of Top Graduate Engineering Programs.
- NC State ranked 31 in the world and 3 in North America on Nature Index's list of 100 institutions that increased their contributions to a selection of top academic journals over a four-year period from 2012 to 2015.
- Greatist.com recognized NC State as "One of the 26 Healthies Colleges" in the United States.
- NC State was ranked among the "25 Best Bachelor's in Nuclear Engineering" by College Choice.

- NC State's online Master of Nutrition program earned the top spot on BestColleges.com's list of the country's top programs for the second year in a row.

### **Athletic Excellence**

- NC State currently stands No. 29 in the Directors' Cup Standings. The last six years have produced five of the 10 highest Directors' Cup finishes in school history, including a program-best No. 27 in 2015.
- A total of 16 NC State teams reached postseason competition in 2016-17.
- NC State has had nine teams finish in the Top 25 in 2016-17 - four in the Top 10 (women's CC/men's S&D -4th; women's S&D 7th and rifle 9th). Over the past three years, a combined 28 teams have finished ranked in the Top 25 in their respective sports.
- NC State won three conference championships and had a league-high five ACC Coach of the Year honors in 2016-17.
- Academically, all our programs were well above the NCAA APR benchmark, and 14 of our teams scored above 980. We had three teams receive public recognition with perfect scores.
- Wolfpack student-athletes matched the highest Graduation Success Rate (GSR) in school history in the most recent rankings, with a mark of 83 percent. NC State has posted the four highest GSR and Federal Graduation Rates (FGR) marks in school history over the last four years.
- Reynolds Coliseum was the host site for the ACC Wrestling Championships and EAGL Gymnastics Championships. In addition, it will be a future host site for NCAA Gymnastics Regionals and the NCAA Rifle Championships. NC State was selected to host six future NCAA competitions for Division I sports in addition to the 2018 NCAA Men's Golf Regional and 2018 NCAA Gymnastics Regional previously announced. NC State will team with the Greensboro Sports Commission to host the 2021 Division I Women's Swimming and Diving Championship at the Greensboro Aquatic Center. Other events will be hosted solely by NC State at Reynolds Coliseum, Lonnie Poole Golf Course, and PNC Arena.
  - 2020 and 2022 Women's Gymnastic Regionals
  - 2022 Men's and Women's Rifle Championships
  - 2020 Women's Golf Regional
  - 2021 NCAA Men's Basketball Championship (first and second round action)
- Wes Moore, head coach of NC State women's basketball, was named the Blue Ribbon Panel Atlantic Coast Conference Coach of the Year. This is the first time in the 34-year history of the official ACC Coach of the Year award that the honor has been claimed by NC State. Additionally, Moore was selected to serve on the USA Basketball Women's Junior National Team Committee for the 2017-2020 sessions. Under Moore's leadership, NC State's team received a number of impressive recognitions this year including:
  - The Women's Basketball Team finished the 2016-2017 season ranked #17 in the Associated Press and USA Today polls.
    - The team was named the NCAA Division I Play4Kay fundraising winner, beating out the other "power five" schools

- The Men's and Women's Swimming and Diving Teams had exceptional seasons this year, both teams taking the ACC title. This marked the Men's Swimming and Diving Team third straight ACC title and the first time since 1980 that NC State swept both the men's and women's ACC Championships.
  - The men's team won seven individual events, four relay titles, and had 30 top-eight finishes across the board. Multiple swimmers beat personal, competition and school record times.
  - Eleven members from the women's team qualified for the 2017 NCAA Swimming and Diving Championships, marking the most individuals selected for the meet in program history. They placed #7 overall, the highest finish for the program to date.
  - Fourteen members from the men's team qualified to compete in the 2017 NCAA Swimming and Diving Championships.
  
- Wolfpack Wrestling had an impressive season this year, earning top spots at competitions and national recognition.
  - The team finished in second place at the ACC Championship.
  - A record-setting 10 NC State wrestlers competed at the 2017 NCAA Championships, where the team placed #17 overall.
  - Wolfpack Wrestling was ranked #8 nationally in the final NWCA Coaches Poll.
  
- NC State's Women's Tennis Team had a record-setting season. The 19-11 (7-7 ACC) ledger marked a school record for number of totals wins as well as number of wins over ACC opponents. The team was ranked 16<sup>th</sup> in the nation on the Oracle/ITA poll, earning the program's highest ranking to date.
  
- Lauren Phillips, a graduate student on NC State's Rifle Team, received the individual title at the 2017 Great American Rifle Conference, making her the first NC State Shooter to win an individual title at the GARC.

### **Leadership Changes**

- Sarah Stone was named Assistant to the Chancellor for External Affairs in April 2017 after serving as the Interim Assistant to the Chancellor for External Affairs since July 2016. She had worked in the Office of External Affairs for five years prior to her promotion.
  
- Annette Ranft assumed her new role as dean of the Poole College of Management on July 1, 2016. Most recently, Ranft provided strategic leadership as associate and senior associate dean at the University of Tennessee's Haslam College of Business, and as department chair for management at Florida State University's College of Business.
  
- Mark Hoversten joined NC State as dean of the College of Design on July 1, 2016. He had previously been dean of the College of Art and Architecture at the University of Idaho.
  
- Leslie Boney III, vice president of international, community and economic engagement for the University of North Carolina system, was named director of the Institute for Emerging Issues (IEI).

- Marie Williams was named associate vice chancellor for Human Resources. Prior to joining NC State, Williams served as the associate vice president for Human Resources and Administrative Services at Ball State.
- Doug Morton, an NC State alumnus with more than 30 years of experience in engineering, construction and facilities management, was named NC State's associate vice chancellor for facilities.
- Vice Provost and Director of Libraries Susan K. Nutter announced her retirement after thirty years at NC State. During her tenure, she revolutionized the way research libraries can be used as tools of education and outreach, elevating their role in academia. Greg Raschke, the Associate Director for Collections and Scholarly Communication will serve as Interim Vice Provost and Director of Libraries while a national search is conducted.
- The Office for Institutional Equity and Diversity named Moses T. Alexander Greene the new director of NC State's African American Cultural Center. He comes from St. Augustine's University, where he served as chief communications officer and assistant professor of media and communications.
- Carrie Bhada has joined the College of Textiles as the new executive director of the North Carolina Textile Foundation. She brings 17 years of experience in advancing the goals of national non-profits, healthcare organizations and institutes of higher education to the position.

### **Selected Presentations**

As Chancellor of the largest university in North Carolina, Woodson speaks at numerous engagements every month with a wide variety of constituencies, elevating NC State's reputation. Below are selected presentations to external audiences.

- Lecture, "University as Driver for Economic Development", Shanghai Jiao Tong, China (2017)
- Lecture, "The Challenge of Change", Nagoya University, Japan (2017)
- Lecture, "NC State and Innovation," Triangle Smart Cities Summit, Raleigh, NC (2017)
- Panelist, Precision Medicine World Conference 2017, Leaders in Academia, Duke University, Durham, NC (2017)
- Lecture, "University Industry Collaborations," EducationUSA Leadership Institute, Raleigh, NC (2017)
- Lecture, "Experiential Education," Lenovo's NAF Partnership, Raleigh, NC (2016)
- Panelist, Challenge of Change, Borlaug Dialogue, Des Moines, IA (2016)
- AAAS Charles Valentine Riley Memorial Lecture, Washington, DC (2016)
- Panelist, American Association of Blacks in Higher Education, Raleigh, NC (2016)
- Keynote Address, "TechUNemployment," NC Chamber of Commerce Conference on Education, Raleigh, NC (2016)