Faculty Success
Our faculty are accomplishing amazing feats across many disciplines. The American Chemical Society named Melissa Pasquinelli a Fellow to honor her outstanding achievements in and contributions to the chemical sciences. Dr. Pasquinelli is associate department head and director of graduate programs in the Department of Textile Engineering, Chemistry and Science at the College of Textiles. Orlin Velev, INVISTA Professor in the Department of Chemical and Biomolecular Engineering, was also recognized by the American Chemical Society for his research in the field of colloid and surface chemistry. He will receive the 2018 Langmuir Lectureship Award. The Association of Government Accountants recognized Scott Showalter, director of Poole College’s Master of Accounting Program and professor of practice in the Department of Accounting, with its prestigious International Achievement Award. This award honors Showalter’s leadership and contribution to the exchange of ideas on auditing, accounting, and budgeting on an international level.

Human Health Impact Research
In the College of Veterinary Medicine, Ke Cheng was awarded an American Heart Association grant for research into repairing damage caused by heart attacks. The $300,000 Transformational Project Award funds Cheng’s study exploring heart failure’s impact on the reparative ability of stem cells, which can lead to more effective therapies for heart disease. Additionally, researchers from the joint Biomedical Engineering program developed a drug-delivery system that allows rapid response to heart attacks without surgery. The solution relies on porous nanogel spheres, about 250 nanometers in diameter, which target a clot and deliver drugs to dissolve it. The nanogel spheres also limit long-term scarring to heart tissue and preserve more of the heart’s normal function. This groundbreaking research will play a vital role in reducing the large number of deaths caused by heart disease in the U.S. every year.

2019 Chancellor’s Innovation Fund Recipients
Ashley Brown, assistant professor in the Joint Department of Biomedical Engineering, has developed microgel-based materials that mimic blood platelets, and plans to use the Fund to evaluate further their safety and efficacy. Jose Bruno-Barcena, associate professor of microbiology in the Department of Plant and Microbial Biology has developed a new method for the production of a prebiotic that is yeast-based and cost-effective. Michael Daniele, assistant professor in the Department of Electrical and Computer Engineering and Biomedical Engineering, has created microneedle patches for biofluid extraction which will make interstitial fluid sampling methods painless and decrease the risk for infection. Paul Hess, associate professor of oncology and immunology in the Department of Clinical Sciences, has cultivated a potentially groundbreaking cancer vaccine for dogs, and plans to use the Fund to run a clinical trial of the vaccine in dogs with canine lymphoma. Finally, Srdjan Lukic and Srdjan Srdic, associate and research assistant professors in the Department of Electrical and Computer Engineering have developed a prototype fast charger for electric vehicles that is cheaper to install and faster at charging.
**Student Success**
Ziad Ali and Madison Maloney, both Park Scholars in the Class of 2019, received a 2018-19 Astronaut Scholarship. This prestigious award is given only to those who demonstrate great skill and dedication in the fields of science, technology, engineering, and mathematics. Madison has now won this award for two consecutive years, and plans to continue pursuing aerospace engineering to fuel her natural interest in human space exploration. Ziad wants to use his electrical and biomedical engineering knowledge to develop circuits and systems to solve issues related to neurological disorders.

The Foundation for Food and Agriculture Research (FFAR) announced 17 inaugural recipients of the FFAR Fellow award, among whom were NC State graduate students Lindsey Becker, Alison Deviney, and Camilo Parada Rojas. The program provides fellows with the resources they need to carry out research in the areas of food and agriculture, and to transition smoothly into the workforce.

**Advancement**
We are 84 percent of the way towards achieving our goal of $1.6 billion for the ‘Think and Do the Extraordinary’ campaign. Nearly 80,000 people from all 100 counties in North Carolina, all 50 states, and 62 countries have donated to the campaign. These donations have created nearly 1,700 new funds providing scholarships, fellowships, programmatic and facility support. Seventy-five out of 203 endowed faculty positions have been established, including the first ever dean’s chair within the Poole College of Management and the first endowed chair in the College of Veterinary Medicine. Due to funding provided by the campaign, NC State’s Study Abroad Office awarded nearly $2 million in scholarships to 1,333 students, which resulted in a 129 percent increase in study abroad enrollment. NC State’s endowment has more than doubled since 2010 and stands at $1.3 billion.

**Money Magazine Ranking**
NC State ranked number 31 out of 727 colleges in the U.S. in Money’s “Best Colleges for Your Money 2018” and number one out of colleges in North Carolina. It is one of only two colleges in North Carolina in the top 50 rankings. The ranking is determined by educational quality, affordability, and alumni success, which proves that NC State is a great investment for college students. The article noted that 90 percent of NC State students who need financial assistance receive grants, and that after graduation students achieve early-career earnings of almost $54,000 annually.

**Athletics**
The College Swimming Coaches Association of America named 25 men and women on the Wolfpack Swimming and Diving team Individual Scholar All-Americans. Additionally, both the men’s and women’s squads were recognized as Scholar All-America Teams for the 2018 spring semester by achieving a team GPA of 3.0 or higher. This honor is a testament to the intelligence and hard work of NC State’s student-swimmers.
Accomplishments Report | July 2017-June 2018
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, while having educational opportunities that inspire them to lead, serve, challenge, build problem-solving skills, and engage with complex problems.

- In the 2017-18 academic year, NC State enrolled a competitive academic group of more than 4,700 incoming students. The group included 206 Valedictorians and Salutatorians along with 514 first-generation students.

- In 2017-18 NC State launched the Spring Connection program, welcoming its first cohort of more than 460 students in January 2018. Through this program, students that would have been denied for fall admission were able to be deferred until the following spring. Spring 2018 participants were diverse, with significant increases in underrepresented populations, women, and students from Tier 1 and Tier 2 designated counties; 24% of students were first-generation students, 38% were from rural NC counties and 34% were non-white. Students finished their first semester with 94% in good academic standing. Over 470 students made enrollment deposits for spring 2019, with a 26% increase in the number of students from rural counties.

- Graduation rates have increased since the strategic plan was implemented, with the four-year undergraduate graduation rate up 15 percentage points, and the six-year undergraduate graduation rate up six percentage points to 79%. Based on preliminary analysis, NC State is set to pass its goal of 80% in 2018-19.

- The university conferred 9,314 degrees this academic year, with the number of bachelor's degrees conferred up by 9%, master's 31%, and doctoral 36%.

- NC State students were recognized with the following prestigious scholarships and fellowships this year: one Marshall Scholar, one Goldwater Scholar, one Truman Scholar, one Udall Scholar, one Astronaut Scholar, one Fulbright U.S. Student Program grant recipient, 14 Gilman Scholars, one Critical Language Scholar, one Boren Scholar, one Mount Vernon Leadership Fellow, 22 (16 undergraduate and 6 graduate) National Science Foundation (NSF) Graduate Research Program Fellows, and two Hollings Scholars. Students from each college have been recognized for their scholarship, and here are a few highlights:

  - Kobi Felton, a senior majoring in chemical engineering, was awarded the prestigious 2018 Marshall Scholarship. Felton is the third NC State student to receive the scholarship, and he plans to study chemical engineering and nanomaterials. The British Parliament created the Marshall Scholarship, named after American soldier and statesman George C. Marshall, to give top American students the opportunity to earn
graduate degrees in the United Kingdom.

- Tyler Allen, a PhD student and graduate research assistant in the College of Veterinary Medicine, was named to Forbes’ 30 Under 30 List for his groundbreaking research on the molecular mechanisms of cancer cells. His research has led to the innovative Cancer Exodus Hypothesis.

- Madison Maloney, a senior majoring in aerospace engineering, was selected as a 2018 Goldwater Scholar. After graduation, Maloney plans to pursue a PhD in Aeronautics and Astronautics and conduct research on human space exploration systems at NASA or a national lab. Maloney is NC State’s 51st Goldwater Scholar.

- Ashley Lawson, a junior studying mathematics and mathematics education, and was selected as a 2018 Truman Scholar. The Truman Scholarship is a highly competitive, merit-based award offered to those who wish to attend graduate school in preparation for a career in public service. Lawson is the third NC State student to receive this prestigious award.

- Meredith Bain, a junior majoring in mathematics and German studies, was recently selected as a 2018 Udall Scholar. The Udall Foundation awards its highly-regarded undergraduate Udall Scholarship to individuals committed to issues related to the environment and to Native Americans and Alaska Natives in fields related to health care and tribal public policy. Bain is NC State’s 15th Udall Scholar. Thomas Reed, a junior studying fisheries, wildlife, and conservation biology, was selected as a 2018 Honorable Mention.

- Students taking Professor Wayne Place’s advanced studios course on airport design were invited to participate in the prestigious Biennale International Architecture Exhibition in Venice, Italy. They presented their “Airports of the Future” team project that addressed global challenges of geographic location, user experience, technology, and innovative design solutions.

- NC State will also have a competitive incoming Freshman class. The university received 29,861 applications, an increase of 12% from last year, and expects to enroll more than 4,750 freshmen. The university admitted 46% of applicants and the incoming freshmen class represents 95 NC counties, 40 states, and 19 countries. Committed to accessibility, especially for rural students, NC State admitted 47.4% of Tier 1 and 2 applicants.

- Thanks to an expansion of private support, the Goodnight Scholars Program accepted its second class of transfer students, providing a full scholarship to 15 NC Community College students so they can continue their education at NC State and complete their STEM degrees. The Goodnight Scholars Office extended approximately 200 invitations to apply and received more than 100 applications from transfer applicants—more than twice the number they received in their first year. This brings the total number of Goodnight Scholars up to 225 in Fall 2018.

- In order to increase opportunities for students in NC’s rural areas, the university initiated a number of programs in recent years. 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. One example is the ACT Supplemental Preparation in Rural Education (ASPIRE) program is designed to help students from rural areas prepare for college entrance examinations. Another is the CONNECT program, designed for transfer students interested in the Forestry and Environmental Resources degree programs.

- As another means of increasing rural engagement, Rural Works!, created through a partnership between the Division of Academic and Student Affairs (DASA), the Office of Outreach and Engagement, and NC State Cooperative Extension, was launched in Spring 2018. Rural Works! is an internship program that supports NC State’s commitment to social, economic, and technological development across North Carolina by offering an engaging internship experience for high-caliber students to work with employers to achieve their workplace goals in rural Tier 1 counties.

- NC State is also focused on helping students overcome class, social, and cultural barriers to higher education. Via the TRIO program, NC State supports a commitment to provide educational opportunity for all Americans to begin college, graduate, and move on to participate more fully in realizing “America’s Economic and Social Dream.”

Goal 2: Scholarship and Research

NC State’s research culture permeates every aspect of the university. 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 workforce, the economy, the advancement of knowledge, and 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 Prize in Food and Agriculture Sciences, a Sloan Research Fellowship, a Heinz Award for Technology, the Economy and Employment, the U.S. Department of Energy Early Career Research Award, an Olney Medal and the O. Max Gardner Award, among others. The university also has 27 members of National Academies (one new member this year), 45 American Association for the Advancement of Science fellows, 44 active NSF CAREER Awards, 5 NSF Early Career Development Awards, and 11 National Academy of Inventors Fellows (two new members this year). In addition, NC State was recognized as a Fulbright Top Producing Institution with eight Fulbright Scholars and a Fulbright Distinguished Chair Award. Here are snapshots of some of these individuals:

  o NC State mathematician Tye Lidman received the 2018 Sloan Research Fellowship. Lidman is the fourth faculty member in university’s history to receive this honor. His research is focused on gaining a better understanding of the nature of shape and “knottedness” of objects in 3 and 4 dimensions, which can be used to help predict how the actions of different enzymes alter DNA shape. The Sloan Research Fellowship is given to U.S. and Canadian researchers whose achievements mark them among the very best scientific minds working today.

  o Joseph M. DeSimone, the William R. Kenan, Jr. Distinguished Professor in Chemistry and Chemical Engineering received the 22nd Heinz Family Foundation’s Award in Technology, the Economy and Employment for his achievements in the creation and commercialization of advanced technologies in several groundbreaking fields, including
3D printing, precision medicine, green chemistry and nanoparticle fabrication.

- Richard Longland, an Assistant Professor in the Department of Physics, received a 2017 U.S. Department of Energy Early Career Research Award. This award supports Longland’s investigation into nuclear reactions occurring in stars.

- Peter Hauser, Professor in the Department of Textile Engineering, Chemistry and Science, is the 8th professor in NC State’s history to receive the American Association of Textile Chemists and Colorists’ (AATCC) Olney Medal Award for 2017. The AATCC presents the Olney Medal once a year to a leader in the field for outstanding achievements in both textile and polymer chemistry.

- Ruben Carbonell received the 2018 O. Max Gardner Award from the UNC Board of Governors. His work as a researcher, mentor, and educator has led to landmark studies, more than 40 patents, and a number of successful students. This is the highest honor awarded to teachers and researchers in our university system. Carbonell is NC State’s 4th recipient in the last six years.

- Rodolphe Barrangou, Todd R. Klaenhammer Distinguished Scholar in Probiotics Research and Professor of Food, Bioprocessing and Nutrition Sciences, was elected into the National Academy of Sciences (NAS). The NAS is one of the world’s most important and influential scientific societies. Barrangou is the 9th current faculty member to be elected. Barrangou also received the 2018 National Academy of Sciences Prize in Food and Agriculture Sciences. The award recognizes research by mid-career scientists at U.S. institutions who made extraordinary contributions to agriculture or to the understanding of the biology of a species fundamentally important to agriculture or food production. Barrangou was selected for his discovery of genetic mechanisms and proteins driving CRISPR-Cas systems. His research has worldwide applications in food and agriculture, including virus resistance and potential for translational genome editing in other microbes, crops and livestock.

- NC State’s two new inductees into the National Academy of Inventors were Donald L. Bitzer, Distinguished University Research Professor of Computer Science, and William Ditto, Professor of Physics. They were nominated for outstanding contributions to innovation in areas of patents and licensing, discovery and technology, significant impact on society and enhancement of innovation.

- Patrick Rand, Distinguished Professor of Architecture in the College of Design, received the Distinguished Chair selection with the Fulbright U.S. Scholar Program in Finland.

- Other notable highlights of accomplishments from the past year included:

  - College of Sciences Dean and Professor of Pharmacology Chris McGahan was elected president of the International Society for Eye Research (ISER). ISER provides eye and vision researchers with the opportunity to connect with other researchers around the world to discuss contemporary topics in the field. McGahan will lead ISER’s business affairs and other activities as well as oversee appointments to committees. McGahan is an expert in ocular physiology and pharmacology, and her research focuses on the
biochemistry of the ocular lens and retina.

- A team of researchers from the College of Textiles, College of Natural Resources, and College of Agriculture and Life Sciences developed an insecticide-free, protective, comfortable and breathable clothing linen that defends against biting insects. These products have proved to be more 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.

- John Thomas, John S. Risley Distinguished Professor of Physics, was inducted as a Fellow of the American Association for the Advancement of Science (AAAS), one of the nation’s most prestigious scientific honors. Each year AAAS, the world’s largest scientific society and publisher of the journal Science, elects members who have shown “scientifically or socially distinguished efforts to advance science or its applications.” Thomas is honored by AAAS for his groundbreaking contributions to the study of ultracold atomic Fermi gases, in particular measurements of the equation of state and of transport properties. Thomas is the 14th NC State faculty member to become an AAAS fellow.

- Fran Ligler, the Lampe Distinguished Professor of Biomedical Engineering, received NC State’s Innovator of the Year Award for her work in biosensors, fluid control technology, and her recent development of microfluidic devices for use as diagnostic tools.

- As the result of a rare tie vote, the John S. Risley Entrepreneur of the Year Award went to both Matthew Breen and Marian McCord. Breen is the Oscar J. Fletcher Distinguished Professor in Comparative Oncology Genomics. Founder of the Sentinel Biomedical company, he has made tremendous contributions to the biomedical field identifying genetic mutations that could lead to cancer in dogs. McCord, Associate Dean for Research in the College of Natural Resources, is a world-renowned pioneer in the field of atmospheric plasma treatment of fibers and polymers. McCord has been a dedicated scientific advisor to Sustainable Health Enterprises and contributed to the development of “Rynoskin Total”, a product created to protect against Zika and other mosquito-borne diseases.

- Daniel Stancil, Alcoa Distinguished Professor and Head of the Electrical and Computer Engineering Department, was named President of the Electrical and Computer Engineering Department Heads Association. Stancil was selected for his dedication, expertise, and commitment to his field.

- Assistant Professor of Mathematics David Papp is working on an algorithm to personalize radiation treatments for cancer patients. Papp’s “spatiotemporal fractionation” approach would reduce radiation dosage to healthy tissue while maintaining effectiveness against the tumor. Papp completed a proof-of-concept study on live tumor samples, the results of which were published in Physics in Medicine and Biology.

- Assistant Professor in the Department of Statistics Eric Chi received a Faculty Early Career Development Award from the National Science Foundation (NSF). This award is also known as the NSF CAREER award and one of the highest honors the NSF bestows.
upon young faculty in the sciences. The five-year award helps Chi in his research to
develop a new framework that will effectively analyze high-resolution data collected in
fields such as bioinformatics and neuroscience.

- The Ecological Society of America honored Forestry Professor Zakiya Holmes Leggett
  with the Commitment to Human Diversity in Ecology Award. This award is presented to
  members who encourage and support minority students interested in ecology during their
  educational experiences. Leggett participated in one of the first cohorts of the Strategies
  for Ecology Education, Diversity, and Sustainability program at Tuskegee University and
  has remained involved as a mentor and member of the advisory board. At NC State, she
  serves as the Doris Duke Conservation Scholars program director and has created
career development programs for minority students in the Minorities in Agriculture,
Natural Resources and Related Sciences professional society.

- In 2012, the University Faculty Scholars Program was established to recognize and reward
  emerging academic leaders, with approximately 20 new scholars selected each year. The 2018-
  19 cohort of 20 University Faculty Scholars was announced in February 2018, bringing the total
  number of scholars named to 126. Starting this year, scholars carry the title for the duration of
  their faculty appointment at NC State and receive a 5% increase to their base salary.

- Regarding reappointment, promotion, and tenure, 149 cases were reviewed in the 2017-18 cycle;
  146 cases were successful, resulting in 49 reappointments, 30 promotions with tenure, 6 tenure
  conferrals of associate professors (no change in rank), 41 promotions to professor and 20
  promotions of professorially ranked, non-tenure track faculty.

- With exceptional faculty come challenges of retaining them in a highly competitive environment.
  Regarding faculty retention and recruitment, of 27 retention/countertoffer efforts as of June 30,
  2018, 23 (85%) were successful. The university also funded more than $12M in faculty start-up
  packages (44 new in 2017-18 and 112 additional from previous years with multi-year funding) and
  facilitated two key underrepresented minority faculty recruitments through the Targets of
  Opportunity program.

**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, which enriches not only our research activities, but
also our teaching and engagement.

- A portion of 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. CFEP’s strategic investments 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. Since the
program’s inception in 2011, more than 70 new CFEP faculty have been hired for clusters
including Leadership in Public Science; Global Water, Sanitation and Hygiene; and
Bioinformatics, among others. The CFEP website (facultyclusters.ncsu.edu) has the latest information on cluster achievements so the public can learn about the real-world challenges being researched, the diverse individuals involved, and their accomplishments.

- NC State has a national reputation for addressing society’s grand challenges. The university is one of only two in the country currently leading two active National Science Foundation Engineering Research Centers. Both of these are creating innovative solutions to solve some of the world’s most pressing grand challenges.
  
  - The Future Renewable Electric Energy Delivery and Management (FREEDM) Systems Center focuses on smart-grid technology and 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 (ASSIST) focuses on developing nanotechnology-enabled energy harvesting and storage, ultra-low power electronics, and sensors to create battery-free, body-powered, and wearable health monitoring systems.

- NC State is a top-tier research powerhouse. In FY 2016-17, NC State research expenditures exceeded $500 million for the first time in the university’s history. In FY 2017-18, research expenditures are expected to again exceed $500 million.

  - This fiscal year, NC State researchers and research administrators submitted 3,413 proposals valued at $1.15 billion in total funding requests.

  - NC State received $335 million in extramural research awards to be dispersed over multiple years to 2,721 projects.

  - The Proposal Development Unit supported the development and submission of 56 large-scale, interdisciplinary team proposals that resulted in $20.5 million in awards with another $38.5 million requested still pending.

  - Since 2009, NC State total research awards have increased by 63%; however, sponsored award totals dropped from FY 2017 to FY 2018. The decrease in awards can be attributed to two factors. In FY 2017, NC State received an atypically large grant from the Golden Leaf Foundation in support of the Plant Sciences Initiative for $48 million, which boosted the overall research award numbers. In addition, the FY 2018 numbers were negatively impacted by the uncertain budgetary climate at the federal level and the resultant restraint in making federal awards – especially large ones. This federal deficit is expected to be made up by the end of calendar year.

- NC State’s research commercialization and startups continue to be a differentiator for the university. This year saw a record-breaking 20 startups form based on NC State intellectual property. The Association of University Technology Managers ranks NC State 2nd for licenses and options executed, 5th for invention disclosures, and 5th for startups launched among all US universities without medical schools. All of this was achieved while NC State continued to strengthen its partnerships with the public, government, and private sectors. This year Centennial Campus Partners opened 13 new offices on campus bringing the total number of Partner employees on campus to 4,800, a 4% increase from last year.
• NC State’s Data Science Initiative (DSI) continues to promote coordinated efforts across campus and across the UNC system – with UNC Chapel Hill and UNC Charlotte – to provide extensive undergraduate, graduate and non-degree education in data science and analytics. This includes undergraduate, graduate and executive education courses, certificates and master’s degrees in data sciences, and general non-degree training for students, faculty and the general public. In FY 2015-16, a series of one- and two-day education classes were created in partnership with the Odum Institute for Research in Social Science and the National Consortium for Data Science (NCDS). The weeklong series provided faculty, students, staff and researchers an opportunity to enhance their skills in data analytics. In FY 2017-18, the program included 15 courses with 191 attendees enrolled, comprising mostly graduate students who would use data science methods in their research. DSI also organized a series of invited talks by renowned Data Science experts, an IBM Watson system training boot camp, and a number of Smart Cities events and projects. Finally, DSI proactively helped with establishment of a new NSF Industry–University Cooperative Research Center called Center for Accelerated Real Time Analytics.

• The Research Leadership Academy (RLA) was established in fiscal year 2016 to promote the culture of research leadership at NC State. In its second year, RLA included 23 members with another eight memberships awarded in Spring 2018. This year, RLA focused on establishing programs to support the mentoring of faculty on campus. The programs included three Lunch and Learn workshops and two Research Forums with a total participation of 150 faculty members.

• Established in 2010 to bridge the gap between research and commercialization, the Chancellor’s Innovation Fund helps teams bring their technology to market by providing winning teams with $75,000 in proof-of-concept funding. The primary objective is to advance technologies through commercially relevant milestones over the course of 12 months. Since its establishment, $2.6 million in funding has been awarded to 40 projects. These projects have led to $33 million in external development funds, 35 commercialization agreements worth over $1 million in license revenue and 16 startup companies.

• In the Fall of 2017, NC State was awarded an NSF Innovation Corps (I-Corps) Site and received $500,000 to advance the commercialization of research discoveries. This collaborative six-session program awards teams $3,000 to conduct 100+ voice-of-the-customer interviews. The program also prepares the teams to compete for the $50,000 NSF I-Corps Teams program. Participation in the program establishes NSF lineage for applying to other NSF programs aimed at prototyping, Small Business Innovation Research and Small Business Technology Transfer. In its first year, the NC State program ran two I-Corp cohorts and graduated 19 teams.

• NC State was also selected as one of four locations in the United States for listening sessions held by the Secretary of Agriculture Sonny Perdue. The Biotech Ag Panel focused on increasing rural prosperity through the discussion of agricultural biotechnology and its impact on agricultural and rural economies. NC State was chosen as a host site because of a reputation as a pre-eminent research enterprise and demonstrated economic impact. Dean Linton from the College of Agriculture and Life Sciences moderated, while CALS faculty members Parr, Drach, Barrangou, and Ward served on the panel.

• In partnership with Research Triangle International and the Kenan Institute for Engineering, Science and Technology, support continued for the Game-Changing Research Incentive Program (GRIP). The goal of GRIP is to enable visionary research projects that will have great societal
impact, result in significant follow-on extramural funding as well as superior interdisciplinary graduate education and training. Five teams of NC State faculty and their collaborators across the Triangle continued to pursue their project goals that led to a number of early tangible results, including a provisional patent, a start-up company, and follow-on state and federal funding.

- There are currently 14 public-private manufacturing institutes in the National Network for Manufacturing Innovation (NNMI). NC State is directly involved in seven of the 14 institutes — the most of any university in the country. The Office of Research and Innovation supports interactions with all seven of the NC State teams that are part of the NNMI (e.g., PowerAmerica, AFFOA, ARM, America Makes, NIIMBL, DMDII, CESMII, RAPID). This includes the stand-up phase of the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL), an Institute based at the University of Delaware but heavily dependent on NC State’s Biomanufacturing Training and Education Center. Construction of a new NIIMBL laboratory within BTEC was completed in FY 2018, and instrumentation was obtained to support NIIMBL-related research and workforce development projects. Funds provided by the State of North Carolina to support NIIMBL activities helped to attract 11 new research and workforce development projects to the State, enabled NC small and medium-sized enterprises to join NIIMBL and provided partial support for NIIMBL personnel based at NC State.

- Building on the 30-year partnership with IBM, on May 9, 2018, NC State became the first university-based IBM quantum-computing hub in North America. With access to the IBM Q Network's growing quantum computing ecosystem, the NC State Q hub will add a limited number of industry and university partners as members to work on projects that will address the grand challenges of society with true future-forward vision. Starting this fall, NC State faculty, students and hub members will have access to IBM Q commercial quantum computing devices, including the most advanced and scalable universal systems available. The current 20-qubit IBM Q system will be followed by a next generation 50-qubit prototype, anticipated in first quarter 2019.

- The Smart Cities Initiative continued to strengthen collaboration with the City of Raleigh and other strategic municipal and community partners, as well as advancing four joint research projects to solve local and global challenges. Building on the success of the Memorandum of Understanding (MOU) established with the City of Raleigh last year, discussions are underway to pursue an MOU with the Town of Cary. Last year's inaugural Smart Cities summit brought together city, industry, academic leaders and more than 350 attendees to share ideas aimed at making our region smarter and more connected. The 2018 Summit will be held on October 31, 2018 with $10,000 in support from the City of Raleigh. The Smart Cities team is also collaborating with university and external partners on the submission of a large-scale NSF grant proposal called Platforms for Advanced Wireless Research.

- Here are several highlights that provide a snapshot of the range of research and scholarships taking place across NC State's campus:
  
  - 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. Then, using the magnetic energy from their environment, these microbots 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.

- A team of computer science and education researchers from NC State and museum researchers from the North Carolina Museum of Natural Sciences collaborated on a project to better understand how museum visitors interact with educational exhibits. Knowing how guests interact with such exhibits can influence the future design of museum areas to better engage and educate the public. The work was supported by a $1.95 million grant from the National Science Foundation’s Advancing Informal STEM Learning program that runs through 2021.

- Researchers with NC State’s Center for Geospatial Analytics used immersive virtual reality to test perceptions of green enclosures and aid in the future development of city green spaces. Researchers used a robot to capture 360-degree, high-resolution images of a downtown Raleigh plaza and city park, then manipulated the vegetation to create several different environments. Study respondents provided mixed feedback on the different environments, which has prompted another round of research. Follow-up studies are being conducted in the College of Natural Resources, while a team of researchers from NC State and Clemson University are collaborating to study whether there are cultural differences in landscape preferences.

- An interdisciplinary group of NC State researchers from public administration, psychology, social work and sociology partnered to study North Carolina’s Community Child Protection Teams (CCPTs). CCPTs are found in all North Carolina counties and look for community-based solutions to child abuse and neglect. The team of researchers studied how effectively CCPTs function in North Carolina and whether alternative models should be considered. The results will be compiled into a report and recommendations for state officials so they can make decisions that will better equip North Carolina to address child abuse and neglect.

- An economic analysis conducted by NC State, Oregon State University, and RTI International found that the economic benefits of biodiversity and habitat preservation significantly outweigh the costs of off-road vehicle restrictions at Cape Hatteras National Seashore. The study provided insight into the relative economic value of efforts to balance environmental protection with human access to public lands and avenues for boosting North Carolina’s economy.

- The Namibia Wildlife Aerial Observatory Project was co-founded by NC State Professor Larry M. Silverberg and three Namibian partners: Naankuse, a private wildlife sanctuary; the Namibia Ministry of Environment and Tourism, which manages the country’s national parks; and the Namibia University of Science and Technology. The program allows field units of 8-12 undergraduate students to gain professional, academic, and cultural experiences as they work with professors and researchers from each of the partnering organizations. The pilot program in fall of 2017 saw 10 undergraduate students studying the reactions of animal wildlife to unmanned aerial vehicles. It was such a success that the program will be expanded to multiple project teams and opened to students and instructors from Europe and other countries.

- NC State’s Department of Social Work has received two federal grants totaling $3.1M to train the next generation of integrated behavioral health and primary care providers. The
first grant will provide four years of funding to develop and enhance the credentials of professionals working in addiction and recovery interventions, child welfare, and schools. The specialized training will prepare students for certification and/or licensure. The second grant funds the Behavioral Health Scholars program, led by principal investigator and Assistant Professor of Social Work Jodi Hall. This program will educate and train 30 graduate social work students each year over the next four years.

- Oracle 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 CALS in particular – to launch a 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.

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.

- The Office of Research and Innovation, the Provost’s Office and the Office of Finance and Administration partnered in the development of a new University Shared Core Research Facility, called the Molecular Education, Technology and Research Innovation Center (METRIC), was established. METRIC focuses on mass spectrometry, nuclear magnetic resonance spectroscopy and X-ray crystallography. Investments over the next several years in state-of-the-art instrumentation and refurbished research space has the potential to develop METRIC into the premier chemical and biochemical characterization facility in the South East.

- A new Enterprise Research Administration (ERA) system is in the works for our campus community. The ERA system project seeks to simplify and streamline research activities across the university with multiple objectives, including providing researchers and administrators with the software tools they need to more easily prepare and submit proposals and provide a means to ensure adherence to contractual and regulatory compliance requirements. The new system will increase research integration and collaboration prominence in the years to come, and portions of the system could go live as early as the end of 2018.

- NC State was featured in the 2017 Diverse Issues in Higher Education rankings. The list highlighted the top 100 institutions awarding bachelor’s, master’s, and doctoral degrees to African-American, Asian-American, Native American, and Hispanic students across all disciplines.

- NC State restructured all entrepreneurial activities under the Entrepreneurship Alliance, which seeks to instill students with an entrepreneurship mindset that they will need to thrive in the career of their choice, creating a smart-hub for thinkers and doers. The alliance incorporates a complete infrastructure of academic programs, faculty talent, cutting edge tools/spaces, investor networks and institutional support, including a technology transfer office that is among the best in the nation. Some of the amazing innovative spaces the program offers include the Entrepreneurship Clinic in Downtown Raleigh, the eGarage, the Albright Entrepreneurship Village and the Makerspace. These spaces couple with innovative ingenuity to create an emerging
creativity powerhouse on campus and in the surrounding community.

- The NC State Entrepreneurship Clinic in Poole College of Management was awarded the 2018 Excellence in Co-Curricular Innovation Award from the United States Association for Small Business and Entrepreneurship. The award recognizes the Entrepreneurship Clinic's novel approach to fostering innovation, serving as a classroom for experiential learning, a physical space where students can execute their ideas, a locus of interaction between the university and area startups, and a practical research lab for data collection. This is the second time that NC State has been recognized by the association.

- In FY 2016, the Office of Institutional Research and Planning (OIRP) undertook a partnership with OIT and SAS to establish an institution wide reporting database accessible by all university software platforms and users. Building on the SAS enterprise platform, OIRP—in partnership with OIT and Registration and Records—developed a new online Admission Status Report (ASR) that went into production in spring 2018. Data is captured nightly and displays each day's application counts compared to the same date in the prior year. Tables and charts include information on admission status, selectivity and yield, applicant 10 demographics and academic profiles of entering students, and counts by field of study. A related project is underway in partnership with SAS to develop and deliver optimal enrollment forecasting methods for incorporation with the ASR, provide data transparency for enrollment planners and offer "what-if", or sensitivity, analyses.

- OIRP has continued its support of the institutional implementation of Academic Analytics, a comprehensive scholarly productivity database that provides discipline level peer comparisons to support strategic planning and decision-making. This year, Academic Analytics reports were incorporated into the annual college review process.

- The Office of General Counsel (OGC) created content for the new Free Speech webpage and training at New Student Orientation. OGC continues to lead the Organizational Compliance and Integrity Program and made progress in developing our research compliance training efforts. Further efforts also led to administering NC State's first self-assessment and reporting cycle for compliance owners. The results of the assessment will provide the University Compliance Steering Committee and the Board of Trustees with metrics to better inform strategies, initiatives and resource allocations. The OCG completed their first year utilizing the EthicsPoint hotline with 12 complaints received.

- The university handled a significant number of complex business transactions, the most impactful being the PNC Bank Retail Services Agreement, which provides for sponsorship as the "official bank" of NC State. The agreement is worth $9 million over fifteen years.

- NC State's alternative transportation programs have had an impressive year:
  - In August 2017, a partnership with LimeBike was launched to bring an affordable bike share program to the campus and the Raleigh area, as well as to help further reduce our carbon footprint and encourage healthy travel habits. By June 30, there were 421 active LimeBikes. Through June 30, LimeBike registered 21,521 unique users who took 84,307 trips, resulting in 41,017 miles of travel by bike, reducing fossil fuel use by 1,270 gallons, automobile trips by 30,229 and 41,017 pounds of Carbon Dioxide from our campus and neighboring areas.
In August 2017, TransDev began operating the University's iconic Wolfline transit service. The new ten-year contract brought forty new clean diesel buses to operate Wolfline's ten routes. During the 2017-2018 academic year, Wolfline transported 3.5 million passengers between the University's three campus and park and ride lots.

Within the last fiscal year, NC State encountered a critical challenge: ensure that all research projects with the Department of Defense (DoD) meet the International Traffic in Arms Regulations (ITAR) and the National Institute of Standards and Technology 800-171 security requirements by December 31, 2017, or risk losing federal and state funding. The solution, the Secure University Research Environment, transpired as an urgent need for the university to develop and launch a secure, compliant infrastructure to support sensitive research contracts or grants.

The Office of Information Technology (OIT) worked with the Office of Research and Innovation (ORI) and principal investigators to identify all projects requiring DoD security controls and to analyze their unique workflows and determine how to secure each individual project.

Constrained by limited time and resources to meet over 100 technical security controls within a few months, OIT quickly developed a short-term solution: use Amazon Web Services GovCloud to address ITAR requirements, which are significantly more restrictive than those of the NIST 800-171 controls.

The effort required successful collaboration with stakeholders and subject matter experts across campus. OIT and ORI achieved high compliance, with only a limited need to develop a System Security Plan to work towards full compliance by June 30, 2018.

Data and privacy have been recurring issues this year. With the European Union's General Data Protection Regulation, the Office of General Counsel worked with campus partners to assess the effectiveness of our compliance efforts and make adjustments. Areas that are affected include international admissions, international employment and NC State's European Center in Prague. We have also initiated a campus wide review of HIPAA compliance with Sports Medicine, Human Resources, Disability Services, Student Health Services and the Counseling Center. The OGC has advised the HR Search Process and Recruitment Work Group on a weekly basis and conducted a thorough examination of search, recruitment and hiring processes and procedures in order to assess areas for improvements and efficiencies. We continue to work with the EHRA Administration Unit in HR and Faculty Affairs in the Provost's Office to revise and improve offer letters and other templates.

In October, OIT and campus partners implemented a new tile-based navigation that offered a modern look and a mobile, user-friendly interface for the online Portal, the Human Resources System and the Student Information System (SIS). The Employee Self Service and Financial System also underwent a similar upgrade in March of last year. Portal users are now easily able to create new homepages and customize existing ones based on their personal preferences. OIT is continuing to make improvements to SIS, including changes to the online withdrawal process, appeal process, transfer credit process, database architecture, and the admission system.

Throughout NC State's campus, there are three generations of cabling. Back in the mid-1990s, NC State laid the foundation for its first network infrastructure in its residence halls, installing
Category 5 cabling with a maximum speed of 100 megabits per second. In the early 2000s, Communication Technologies (ComTech) began installing the new Category 6 cabling until 2011 when the new Category 6A standard emerged, capable of 10 gigabits per second and much faster than typical internet speeds today.

- Each year, while most students were on summer break, ComTech worked to complete the massive project, replacing roughly 2 million feet or 370 miles with Category 6A cabling. It also installed 247 new network switches, components that manage devices plugged into a network, upgrading those from 100 megabits per second to 1 gigabit per second. The new cable and network switches provide students with faster internet services when they use the wired or wireless network.

- To improve wireless connectivity, ComTech installed 4,367 access points, or devices that provide wireless access to a wired Ethernet network, in each room of the 20 residence halls and in Wolf Ridge and Wolf Village apartments. The new system means students can freely move around their residence halls and apartments and remain on the network. All residence halls now have either Category 6 or Category 6A cabling, and ComTech is working to replace Category 5 cabling in 15 academic buildings by 2020. Excluding work done before 2012, the project totaled $6.7 million and came under the projected budget by 1.4%.

- To strengthen wireless connectivity for interactive teaching, ComTech has installed one access point per 40 seats in 160 of the university’s general purpose classrooms. The largest auditorium on campus, 3400 Nelson Hall, required 12 access points. The goal is to upgrade the remaining 77 classrooms by the end of December 2018.

- Strategic, on-brand and impactful communications and events have proven essential in achieving university strategic goals. These successful efforts have significantly elevated the recognition and reputation of NC State, its colleges and units. Following are a few highlights:

  - Throughout the year, University Communications’ multi-channel advertising/promotion efforts generated more than 100 million impressions and excellent engagement with thought leaders throughout the state and beyond through digital and print advertising. Many millions more impressions were driven via broadcast channels.


  - A priority to amplify stories with federal agencies resulted in NC State research stories being featured on federal agency news sites — including the NSF — more than 50 times.

  - The Social Media Hub generated more than 50 million total impressions and over 1.3 million engagements, and 2.5 million video views with more than 3.4 million minutes watched.
A Digital Philanthropy communications focus, emanating from the Social Media Hub, resulted in the distribution of 265+ philanthropy-focused posts and tweets across Facebook, Twitter, LinkedIn and Instagram, generating nearly 2 million impressions and thousands of direct engagements.

NC State also hosted more than 10,000 guests at special events ranging from private dinners at the Point to athletics events to signature Advancement events, ensuring all attendees had a positive, on-brand experience that promoted the Think and Do the Extraordinary Campaign.

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.

- An investment in NC State creates an excellent return. Each year, NC State adds $6.5 billion to the statewide economy, equivalent to creating more than 90,000 new jobs. That represents significant return on investment for our State’s citizens in the form of research advances, innovative technologies, successful companies, and skilled graduates ready to join the workforce. In fact, the Milken Institute named Raleigh as the #2 best performing metro area economy in the nation, citing NC State’s Centennial Campus and the university’s leadership in research, industry partnerships and workforce development as key drivers of the city’s booming economy.

- NC State’s Centennial Campus is the university’s proving ground for highly effective public-private partnerships. The campus is now home to more than 75 corporate, government and nonprofit partners working alongside an equal number of academic departments and units, resulting in real-world opportunities for students and increased innovation. Centennial Campus partners hire more than 300 NC State students each year.

- The Office of Partnerships and Economic Development (OPED) was engaged in more than 50 statewide economic development projects in collaboration with the Economic Development Partnership of NC, Regional Prosperity Zones, Wake County Economic Development and economic development organizations across the state. OPED provided strategic support in recruiting new companies and facilitating the expansion of existing companies statewide. This year’s efforts resulted in twelve project announcements with a projected impact of 6,185 potential jobs and $1.9 billion in potential capital investment created across North Carolina. A few examples are in the following table:

### Economic Development Projects – FY 2018

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
<th>Location</th>
<th>Capital Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggers (Austria)</td>
<td>700 jobs in manufacturing</td>
<td>Davidson County</td>
<td>$700M</td>
</tr>
<tr>
<td>Triangle Tyre (China)</td>
<td>800 jobs in manufacturing</td>
<td>Edgecombe County</td>
<td>$800M</td>
</tr>
<tr>
<td>Premex (South America)</td>
<td>10 jobs in animal nutrition</td>
<td>Durham County</td>
<td>$2M</td>
</tr>
<tr>
<td>GKN (United Kingdom)</td>
<td>100-200 job expansion in automotive and aviation manufacturing</td>
<td>Alamance County</td>
<td>$179M</td>
</tr>
</tbody>
</table>
- NC State's Office of Technology Commercialization and New Ventures (OTCNV) launched a record 15 startup companies, executed a record 169 licenses and options, and filed 241 patents in FY 2017. 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, launched last fall to connect NC State alumni angel investors with promising university-affiliated startup companies, already has over 70 new members and has invested in six startups to date.

- The Plant Sciences Initiative is a $160.2 million project to create a highly collaborative and interactive environment where the College of Agriculture and Life Sciences can build multidisciplinary partnerships with government, industry, and regulatory agencies regarding the grand challenges of agriculture, agribusiness, and plant research (e.g., food production, sustainability, disease resistance, and climate change). Plant Sciences is anticipated to be completed on Centennial Campus in June 2022.

- NC State's industry and community partnerships continue to prosper and grow. Some examples include:
  - ABB, Centennial Campus’s first corporate partner, focuses primarily on advancements in smart grid and clean energy technology. ABB has hired more than 250 graduates and employs students as interns. The corporation is also a partner with many Centers and Institutes including FREEDM, PowerAmerica, and the Center for Additive Manufacturing and Logistics.
  - The Golden Leaf Biomanufacturing Training and Education Center is a unique, cross-disciplinary instructional center that provides educational and training opportunities to develop skilled professionals for the biomanufacturing industry. Undergraduate and graduate courses are taught here, industry training is provided, and it also offers bioprocess development and analytical services to academia and industry.
  - The School of Knowledge Economy and Management (SKEMA), a highly ranked and highly regarded French business school, offers undergraduate and graduate business program on Centennial Campus. The partnership between NC State and SKEMA creates international opportunities for students and faculty to study, research, and work, and opens the door for new economic development.
  - NC State and VF Corporation announced a strategic partnership to support student development at NC State and advance apparel and textiles innovation within VF. The collaboration will offer students in the College of Textiles and the Poole College of Management opportunities for innovative research and real-world experience through internships, student projects and competitions.
  - The Wake STEM Early College High School won the Magnet Schools of America's 2017-18 Magnet School of Excellence Award. Wake STEM Early College High School is a joint program between the College of Education and Wake County Public School System, and it is the only magnet school in Wake County to receive the honor this year. The Magnet Schools of America recognizes top magnet schools in the United States annually for demonstrating a commitment to high academic standards, curriculum innovation,
diversity, and consistent high-quality educational services provided to all stakeholders.

- NC State has its first and only permanent international facility with the inauguration of NC State’s European Center in Prague. Dating back to 1991, the center has its roots in summer programs sponsored by the College of Design. The program continued to grow until it was moved to the Office of Global Engagement. This center exists to support the educational and outreach objectives of both students and faculty and is expected to be NC State’s gateway to Europe for creating further international networks and experiences in the future. This marks not only an important expansion for NC State’s international growth, but also for the growth of the university’s impact on creating and providing opportunities to provide a more dynamic and holistic education for future generations of scholars and researchers.

- In 2017-18, the Study Abroad Office served 1,567 outgoing undergraduate students, an increase of 14.4% and a 20% increase in participation rates among underrepresented minority students over the previous year. Of particular note, NC State has met and surpassed the Generation Study Abroad goal for 2019 one year early to increase the overall study abroad participation by 50% and of underrepresented student populations by 50% by 2019.

- The Office of Global Engagement oversees global research, education and partnership efforts that tackle the grand challenges of our interconnected society and elevates NC State’s reputation at the international level. In the past year, NC State signed 45 academic and research MOUs and agreements (35 new and 10 renewals).

**Advancement**

- NC State also appreciates the need for increased private support to help achieve strategic objectives. In October 2016, NC State launched the most significant philanthropic campaign in the university’s history. University Advancement made excellent progress on the Campaign, reaching a total of $1.33 billion: 83% toward goal with 63% of the planned Campaign period elapsed.

- Gifts and new commitments totaled $215.4 million, driving NC State above the $200 million mark for the second consecutive year.
  - $62.9 million in gifts and commitments supported the endowment; $38.2 million supported facilities; $114.3 million supported current operations.
  - $33.4 million was committed in the form of bequests and $2.9 million was received in realized bequests.

- Gift receipts totaled a record $165.08 million.

- The College of Agriculture and Life Sciences led the way in college/unit development success, raising $41.1 million, followed by the College Engineering at $39.3 million and the Wolfpack Club/Athletics at $27.9 million. Several colleges/units posted impressive gains (gifts and commitments) versus the previous year:
  - College of Sciences +227%
- College of Education +138%
- Alumni Association +108%
- College of Natural Resources +40%
- College of Design +28%

- Central Major Gifts secured $18.15 million in new commitments, far surpassing its goal of $6.5 million.

- All gifts to NC State are noteworthy. Nevertheless, three from the last year are worth particular mention:
  - A $25 million commitment from Edward P. Fitts and Edgar Woolard Jr. to name Fitts-Woolard Hall.
  - A $10.86 million commitment from the Belk Foundation to the College of Education to help create access to NC State for community college graduates.
  - A $10.75 million gift from the Park Foundation in support of the Park Scholars program.

- Corporate and foundation gifts, pledges and matching gifts totaled $97.68 million, well exceeding the $60 million goal.

- An all-time high, 810 members of the senior class made gifts. In addition, 1,407 total students — another record — made gifts throughout the year.

- In addition, the endowment value passed $1 billion for the first time in the university’s history, with the FY 2017 fund value at $1.123 billion, a 12.5% increase from the FY 2016 value of $998.6 million. More than $250 million in cash gifts (out of over $610 million in total commitments to the endowment) have augmented the endowment total during the campaign.

- Giving toward the campaign to date has created nearly 1,500 new funds, benefiting students, faculty, programs and facilities. These funds have allowed NC State to create nearly 150 new endowed scholarship and fellowship funds, which can provide support in perpetuity potentially benefiting thousands of students. They have also created more than 70 distinguished professorships, allowing NC State to recruit and retain top faculty.

- Through their generosity, NC State alumni Bill and Frances Henry will enable the university to complete the installation of 54 bells in the iconic Memorial Bell Tower. The three-year project will also install a carillon and interior stairs that were part of the tower’s original design when it was conceived in 1921. It will also fund some renovation, structural repairs and stabilization, and update the tower’s plaza, which will be renamed Henry Square.

- Dr. Natasha Olby, professor of neurology and neurosurgery in the College of Veterinary Medicine, was recently awarded the Dr. Kady M. Gjessing and Rhana M. Davidson Distinguished Chair in Gerontology. This is the first named chair at the College of Veterinary Medicine and the third at NC State. Additionally, it is the largest endowed chair in NC State University History and provides
the foundation for a veterinary gerontology program at the College of Veterinary Medicine, making NC State the first and only vet school in the United States with a concentrated Gerontology Program.

- An anonymous couple made a $4.5 million bequest to the College of Sciences Foundation to benefit students and faculty in the department of Applied Mathematics. The gift will endow a $2.5 million distinguished faculty chair, a $1.5 million undergraduate scholarship fund, and a $500,000 graduate fellowship.

- The Alumni Association Outreach team continued to provide outstanding engagement support to the Think and Do the Extraordinary Campaign, including visiting 30 cities in North Carolina and across the country:
  
  - North Carolina events were held in Asheville, Elizabeth City, Charlotte, Greensboro, Kinston, Morehead City, New Bern, Washington, Wilmington and Yadkinville.
  
  - Outside the state, events were hosted in Atlanta, GA; Austin, TX; Bluffton, SC; Charleston, SC; Columbia, SC; Denver, CO; Hilton Head, SC; Hollywood, FL; Los Angeles, CA; Miami, FL; Myrtle Beach, SC; New York, NY; Palm Beach, FL; Pittsburgh, PA; Portland, OR; San Francisco, CA; Seattle, WA; Tampa, FL; Washington, DC; and West Palm Beach, FL.

Facilities

- The Connect NC Bond is making two key infrastructure investments possible for NC State: Engineering Building Oval and Plant Sciences Research Complex (see Engagement and Partnerships section). The Engineering Building Oval, hereafter referred to as Fitts-Woolard Hall (see Advancement section), is a $137 million project to build the fourth engineering building on Centennial Campus. Fitts-Woolard Hall broke ground in April 2018 and is on track to be complete in June 2020.

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

- The Gregg Museum of Art and Design held a ribbon-cutting ceremony on August 26, 2017 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 woodturning by Zach Gregory of the Crafts Center, and bamboo sculpting by Will Hooker, a professor of horticultural science.

- The StateView hotel opened in October 2017 on Centennial Campus. Adjacent to the Park Alumni Center and Lake Raleigh and across the street from the Lonnie Poole Golf Course, the hotel offers 164 rooms, suites, a restaurant and bar, and meeting rooms. The StateView is Raleigh’s first hotel in Marriott’s Autograph Collection Hotels and is silver-level LEED-certified.

- Academic Success Center: Work continued on the development of a new one-stop academic support space – the D.H. Hill Academic Success Center. This will bring together the University Tutoring Center, academic coaching, drop-in advising, career counseling and the Undergraduate
Research Office. The project, now in the design development phase and planned to open in fall 2020, includes the complete renovation of the second and third floors of the bookstacks towers and a new open stairwell connecting these floors with the Ask Us lobby. In addition to the DASA Academic Success Center spaces on the second floor, new Libraries spaces will include an Innovation Studio, an enlarged and upgraded Visualization Studio and a Dataspase. Libraries and DASA staff are working together to build mutual understanding of and integrate their services for students, and to share strategies and methodologies for assessing those services.

- NC State also completed a comprehensive real estate strategy for acquisition of critical properties and management, and operation and development of the university's real estate portfolio, ensuring prudent use of current and future resources. In addition, a comprehensive assessment was conducted and established a planning methodology to vet development ideas and infrastructure needs when determining the most urgent and impactful projects across campus. This resulted in a collaborative, focused approach to capacity planning and development.

**Legislative, Policy and Advocacy**
The following were achieved during the 2017 Long Session:
- No management flexibility reduction in FY 2017-18
- Research Opportunity Initiative ($1 million in FY 2017-18)
- Faculty Recruitment and Retention Fund ($1 million in FY 2017-18)
- Repairs and Renovations Reserve (50% of $125 million to the UNC System)
- Funds for NC State’s participation in the National Institute for Innovation in Manufacturing Biopharmaceuticals ($2 million in FY 2017-18)
- NC State’s Cooperative Extension ($700,000 continuing in FY 2017-18 and $800,000 continuing in FY 2018-19)
- Food Processing Innovation Center, to be housed at the NC Research Campus in partnership with the College of Agriculture and Life Sciences ($5.1 million in FY 2017-18, $700,000 of which is continuing)

**Rankings and Recognition**
Here are highlights from rankings and recognitions for NC State in the past year:
- **U.S. News & World Report**
  - #5, Best Value Public Schools
  - #33, U.S. Public Universities
  - #44, Best Colleges for Veterans
  - #15, Statistics
  - #3, Graduate Veterinary Medicine
  - #4, Online Graduate Computer Information Technology Programs
  - #9, Online Graduate Engineering Programs
  - #25, Graduate Engineering Programs
- Princeton Review
  - Named to the "Colleges That Pay You Back" list
  - Named a "Best Southeastern College"
  - #7, Best Health Services
  - #38, Top 50 Game Design (Undergraduate)
  - Named a "Green College"
  - #19, Top 25 Entrepreneurship (Undergraduate)

- Kiplinger's Personal Finance
  - #9, Best Value for In-State Students Among Public Colleges
  - #7, Best Value for Out-of-State Students Among Public Colleges

- U.S. News Online Programs
  - #4, Graduate Computer Information Technology Programs
  - #9, Graduate Engineering
  - #14, MBA Programs
  - #15, Graduate Education Programs

- Forbes
  - Top 100, Best Employers for Diversity in America

- Money Magazine
  - #1, Best North Carolina College for Your Money

- Center of World University Rankings
  - #5, Entomology
  - #7, Material Science, Textiles
  - #8, Agricultural Economics and Policy

- Times Higher Education World University Ranking
  - #5, Entomology Program

- SoFi
  - #4, Best Return on Investment, MBA Programs

- Peace Corps
  - #22, Top Volunteer-Producing Colleges and Universities

**Athletic Excellence**

- NC State Athletics had its finest year competitively, finishing the Fall ranked No. 7 nationally in the Directors' Cup, completing the Winter in the No. 5 position nationally, leading all ACC institutions, and finishing the year with NC State's all-time high of No. 15.

- Key competitive achievements from this year included:
  - Twelve teams finished in the Top 25 of their respective sports, including three teams in the Top 10. A program record 20 of 23 teams competed in NCAA Championship competition. Collectively, these results contributed to the first-ever Top 25 finish in the Directors' Cup.
- Four team conference championships: Women’s Cross Country (ACC), Men’s Swimming & Diving (ACC), Wrestling (ACC Regular Season Dual Title), Gymnastics (EAGL).

- Claimed six individual national titles associated with 12 student athletes: (2 men’s swimming relay titles, 3 men’s swimming individual event titles, 1 wrestling national champion)

- Four Coaches of the Year:
  - Braden Holloway, ACC Men's Swimming & Diving Coach of the Year
  - Laurie Henes, ACC Women’s Cross Country Coach of the Year and USTFCCCA Southeast Region Cross Country Coach of the Year
  - Pat Popolizio, ACC Wrestling Coach of the Year and WIN Magazine Dan Gable NCAA Coach of the Year
  - Kim Landrus, NAGCW Southeast Region Coach of the Year.

- Team-specific highlights include:
  - Women’s Cross Country won their second consecutive ACC Championship and achieved a third-straight NCAA Top 10 finish.
  - Volleyball made the NCAA tournament for the first time since 2012 and achieved their first NCAA victory in program history.
  - Men’s Soccer made the NCAA tournament for the first time since 2009.
  - Women’s Soccer returned to the NCAA Championship, which was their first time earning consecutive NCAA appearances since 1995.
  - Football finished with a bowl victory and a No. 23 final ranking, their first time concluding the season with a Top 25 ranking since 2010.
  - Men’s Swimming & Diving claimed a program-best 5 National Titles and finished No. 4 at the NCAA Championships. They also won their fourth consecutive ACC Championship.
  - Wrestling achieved a program-best 4th place finish at NCAAs, including one National Title and a program-best four All-Americans.
  - Women’s Basketball advanced to the Sweet 16 for the first time since 2007.
  - Men’s Basketball returned to the NCAA Tournament after a two-year absence.
  - Men’s Golf advanced to the NCAA Championships for the first time since 2011.
NC State athletes achieved an all-time high Graduation Success Rate score of 85%. In addition, student athletes have earned the following academic recognitions:

- 59 Academic All-American Student Athletes, an all-time high
- 94 Academic All-Conference Student Athletes, an all-time high
- 254 ACC Honor Roll
- 226 NC State Deans List
- 439 NC State Honor Roll
- 4 ACC Scholar Athletes of the Year: Anton Ipsen (Men’s Swimming), Michael Macchiavello (Wrestling), Stephen Franken (Men’s Golf), Brian Brown (Baseball)
- Arthur Ashe Female Sports Scholar Athlete of the Year: Claire Zonti (Rifle)
- NCAA Jim McKay Post-Graduate Scholarship Recipient: Soren Dahl (Men’s Swimming)
- The cumulative average GPA for student athletes is at an all-time high of 3.05, which is the first time the university has posted a cumulative average over 3.0.

Leadership Changes
In the past year, NC State’s new leaders included:

- Kevin Howell was named the new Vice Chancellor for External Affairs, Partnerships, and Economic Development in 2018.
- Christine McGahan became the Dean of the College of Sciences in 2017.
- Peter J. Harries was named Interim Dean of the Graduate School in 2017.
- Sheri Schwab became the Interim Vice Provost for Institutional Equity and Diversity in 2018.

Professional Service
Chancellor Woodson was engaged with the following organizations, further elevating NC State’s reputation:

- Association of Public and Land-Grant Universities (APLU)
- NCAA Division I
  - Presidential Forum, the primary presidential advisory body for the Board of Directors
  - Presidential Forum’s Steering Committee, providing strategic direction for the Forum
- Executive Committee of the US Council on Competitiveness
- Executive Committee of the Business-Higher Education Forum
Thought Leadership
Chancellor Woodson also represented NC State in numerous events as a keynote speaker, panelist, and host. These include:

- Biotechnology Discussion with US Secretary of Agriculture Sonny Perdue (one of four national listening sessions focused on increasing rural prosperity)
- International Society of Exposure Science
- Food Processing Innovation Center Committee
- UNC's My Future NC event
- Triangle Smart Cities Summit
- Innovate Raleigh Summit
- Laboratory for Analytic Sciences Annual Research Symposium
- Mexican Consulate's Secretary of Education event
- Food Systems Leadership Institute
- Chrysalis Network and Counseling Center Conference
- Numerous alumni events – locally, nationally and globally -- since the campaign launched to drive engagement with the university and build a greater network of advocacy.

UNC Performance Metrics
NC State is also making excellent progress for the UNC Performance Metrics, established this year:

- Rural Enrollments: By fall 2021, NC State will enroll 5,836 rural students, over the 2016-17 base of 5,501. In 2017-18, the university enrolled 5,347. We are proud that NC State educates more North Carolina students than any other university, and enrolls students from all 100 of the state's counties. We will continue our efforts to increase rural students' enrollment. NC State houses several programs that help ensure a variety of pathways for enrollment at the university. For example, NC State's College of Agriculture and Life Sciences provides a unique opportunity through STEAM (Student Transition Enrollment Advising and Mentoring), a program that helps make higher education more accessible to rural students interested in pursuing an agriculturally-related major. Participants take part in a summer session at NC State and then take their first semester of coursework at a North Carolina community college (or other institution). In addition, TRIO programs like Talent Search and Upward Bound also serve rural students and encourage them to apply to NC State, and provide equal access to high-quality education by facilitating retention and promotion from middle schools through post-baccalaureate completion. Talent Search serves 800+ middle and high school students, while Upward Bound serves 180+ high school students. These efforts also align with Goal 1.

- Five-year Graduation Rates: By 2022, NC State will improve its five-year graduation rate to 81.6%, over the 2015 base of 78.2%. In 2017, we achieved 81.0%. We have implemented
several initiatives and programs to help our students succeed, and we are seeing strong results, including graduation-rate improvements. In fall 2015, NC State implemented a new advising platform — Student Success GPS (Go, Plan, Succeed) — which incorporates advising, scheduling, calendaring, student communication tools, student data and predictive analytics with existing student information. This improved information flow has been instrumental in increasing student graduation and retention rates. MyPack Portal, an online tool that includes the Enrollment Wizard, online degree audits and the Pack Planner, allows students to monitor their academic progress and choose schedules that ensure timely graduation.

- Undergraduate Degree Efficiency: By 2021-22, NC State will improve its undergraduate degree efficiency to 24.9 over the 2015-16 base of 24.0. Our 2016-17 performance was 24.3. As part of our ongoing efforts to enhance student success, this will come in part as a result of efforts to increase our undergraduate graduation rates and decrease students’ average time to earn a degree. Expanded academic advising services give students more options, like the Academic Recovery Program, to get and stay on track to earn their degree in four years. DASA supports efficiency by creating a centralized home for the majority of student and academic support programming on campus. Our Change of Degree Application process helps students change degree programs more efficiently and achieve a timely graduation. We offer many programs and services like these to encourage efficiency while placing primary importance on educational quality.

- Critical Workforces: By 2021-22, we will produce 6,064 critical workforce credentials, over the 2015-16 base of 5,399. In 2016-17, NC State awarded 5,501. K-12 teachers make up a large number of critical workforce credentials. We are helping to put the state’s brightest minds in K-12 classrooms in North Carolina in part through the return of the North Carolina Teaching Fellows program. We supply North Carolina’s booming Research Triangle region, and the state and country at large, with highly sought-after graduates with science, technology, engineering and mathematics (STEM) degrees. The Goodnight Scholars program targets low- and middle-income students (four-year and transfer) studying in the STEM disciplines or affiliated education majors, developing scholars into leaders within the STEM and/or STEM education fields.

- Research Productivity: By 2021-22, NC State will receive $404.0 million in research and development sponsored program awards and licensing income, over the FY2015 base of $311.3 million. FY2017 sponsored program awards and licensing income is $403 million. NC State is recognized as a research powerhouse. More than 125 startups and spin-offs have been based on our research, attracting more than $1.6 billion in venture capital. We are ranked 6th nationwide in commercialization agreements based on university research; we’re among the top 25 universities for technology transfer. From our research, more than 950 patents have been issued in the U.S. and nearly 2,000 worldwide, yielding 550+ consumer products. We have also focused on supporting undergraduate research productivity and increased funding by $100,000 for more than 1,100 students conducting research and/or attending conferences. Participating in research at undergraduate and graduate levels, NC State students are better positioned for future careers.

- Low-income Enrollments: By fall 2021, we will enroll 4,925 low-income students, over the 2015 base of 4,625. In 2016, the university enrolled 4,543 low-income students, but we have a number of programs to increase low-income access to a high-quality college education. In 2015, NC State joined the Coalition for Access, Affordability and Success, a free platform of online tools for planning and applying to college. The TRIO programs Upward Bound and Talent Search serve 1,000 low-income and first generation middle and high schools students each year. The NC State
Community College Collaboration (C3) is a dual-admission program between NC State and eight regional community college partners. C3 helps low-to-moderate income students who aspire to transfer to NC State after completing their associate degree. PackTrac is a collaboration with 10 North Carolina Community Colleges to provide academic training and advising to students passionate about agriculture with a desire to earn a degree from NC State. The Juntos Program helps Latino students have more success in middle and high school and continue on to post-secondary education. These efforts also align with Goal 1.

- Rural Completions: By 2021-22, NC State will produce 1,400 rural graduates, over the 2015-16 base of 1,300. In 2016-17, we had 1,309 rural completions. The university supports rural students throughout the lifespan of their undergraduate careers by offering programs and services focused on academic success. This includes a recent increase in the number of professional advisors to better serve students and ensure timely progress toward a degree. The University Tutorial Center also encourages degree completion among these students by providing academic assistance for many 100- and 200-level math, chemistry and physics courses, as well as writing and speaking support. In the past five years, the University Tutorial Center has diversified tutoring services by adding math and chemistry drop-in tutoring, and academic support for the Summer Start program, which has resulted in a 20% increase in the number of students served.

- Achievement Gaps in Undergraduate Degree Efficiency: By 2021-22, we will reduce the achievement gap in undergraduate degree efficiency among rural students by 50% to meet a goal of 23.2. In 2016-17, NC State achieved 23.5, over the 2015-16 base of 21.4. Setting rural students up for success includes changes in our academic policies to help close the aforementioned achievement gaps. We have changed policies regarding the continuation of undergraduate enrollment, satisfactory academic progress, undergraduate grade exclusion and withdrawals. These policy changes were supported by in-depth data analysis and were designed to promote student behaviors that are consistent with on-time graduation. We are also implementing initiatives for larger fall freshmen cohorts and more intentional paths to transfer into NC State from North Carolina community colleges. We also launched a deferred spring admissions program where freshmen applicants are admitted if they delay their enrollment to the first spring semester after high school graduation. All of these initiatives are gradually helping to close an achievement gap for rural students.

- Low-income Completions: By 2021-22, NC State will produce 1,681 low-income graduates, over a 2015-16 base of 1,579. In 2016-17, NC State had 1,495. We seek to help ease the financial burden for these students, and offer programs like Dollars and Sense, a financial literacy program offered with help from the Office of Scholarships and Financial Aid, which helps students make better financial decisions while in school and after graduation. The Provost's Professional Experience Program gives students the chance to earn an income on-campus while working on research and professional development. The program debuted in the 2015-2016 academic year in response to faculty advocating for more opportunities for students to work on campus, as off-campus jobs are not an option for many students. By continuing to provide strong support to low-income students, we are fulfilling our land-grant mission and helping them complete a valuable college education.