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THE UNIVERSITY OF
ALABAMA IN HUNTSVILLE

PRESIDENT'S ANNUAL REPORT 2016

TRANSITION

UAH RAPIDLY EVOLVING INTO A
"COLLEGE CAMPUS"

INSIDE: REFLECTIONS

A message from
the President



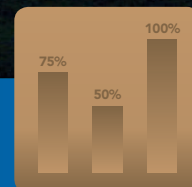
HIGHLIGHTS

A brief recap of
achievements



DATA POINTS

An infographic
year in review





UAH's brand-new Student Services Building serves as both the "front door" to the campus and the home of all student-related services for the university. Construction on the 90,000-square-foot building was completed last spring, in time to host The Board of Trustees of The University of Alabama for UAH's annual Institutional Meeting.



THE UNIVERSITY OF ALABAMA IN HUNTSVILLE ADMINISTRATION

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Provost and Executive Vice President
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Christine Curtis, Ph.D.
Vice President for University
Advancement
Robert Lyon
Vice President for Student Affairs
Kristi Motter, Ph.D.
Senior Vice President
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Ray Pinner
Vice President for Diversity
Delois Smith
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Ray Vaughn, Ph.D.

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features



3 Cover Story

Growing enrollment and an expanding physical presence have transformed the university.



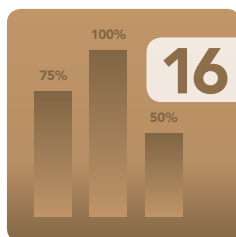
6 News Briefs

Gravitational waves, a supersonic wind tunnel, collaborative learning, and Dr. Gary Zank's election to the National Academy of Sciences dominated the year's news.



10 Highlights

A brief recap of the recent accomplishments of UAH's faculty, researchers, and students.



16 Data Points

An infographic look at the year in review.



18 Community Connections

A generous gift from longtime supporter Dr. Dorothy Davidson will help UAH fund its Invention to Innovation Center.

UAH campus continuing to make great strides forward



For many, the term “college campus” evokes a picture of a full-time student body living on a campus with much campus activity. In its early history, that was not UAH, which was considered a commuter school. But, as the institution has matured, the transition to a campus with a mix of commuter and a significant number of residential students began. With the increases in full-time enrollment taking place in recent years, that transformation has gained significant momentum. This progression continues with the construction of a new 400-bed residence hall, to meet the growing demand for on-campus housing, and a new sorority house, both expected to open in the fall of 2018. What this change represents is a more vibrant campus life with an evolving culture of engagement and involvement for both residential and commuter students.

Results from the National Survey of Student Engagement show that involved students perform at higher levels academically and are retained at higher rates, as our efforts in academic engagement

in part through our Center for Collaborative Learning have demonstrated as documented in this Annual Report (page 6). Engaged students are more likely to be involved socially (athletic events, clubs/organizations, leadership), academically (faculty interactions, study groups, academic clubs) and as active alumni and are more likely to have a favorable image of their college and college experience.

The record growth of UAH’s student population has been accompanied not only by an evolving culture of engagement and campus life but increased quality of incoming undergraduate students with record ACT test scores and outstanding high school GPA’s, as well as improved retention. Students earning a degree from UAH are among the best prepared graduates in the state and nation. That fulfills a key mission for the university — providing a world-class education. The quality of a UAH education is affirmed through our alumni salaries, ranking first among all Alabama universities based on the economic outcomes of its graduates, and among the top 2 percent in the nation, according to the Brookings Institution, a highly respected D.C. think tank. This points to the value of the academic and research experience on our campus. UAH is a leader in advanced workforce development with graduates found in leadership positions concentrated not only at Redstone Arsenal and Cummings Research Park, but also across Alabama and beyond.

All indications point to continued growth in enrollment, student engagement, and campus activity at UAH. As alumna Mital Modi puts it: “It is nice to walk around and get the ‘campus’ feeling by seeing students walking and even riding their bike through the greenway.”

To find out more:

<http://nsse.indiana.edu/> and <http://blog.orgsync.com/2009/student-involvement-means-success-all-around>

TRANSITION

"It is nice to walk around and get the 'campus' feeling by seeing students walking and riding their bikes on the greenway."

– Mital Modi

President, UAH Alumni Association

UAH RAPIDLY EVOLVING INTO A "COLLEGE CAMPUS"

Gone is the Sanderson subdivision that stood in the middle of The University of Alabama in Huntsville campus for more than a half century. It took more than 30 years, but those homes were purchased by the university beginning in the mid-1970s as they became available for sale.

Those purchased homes were rented by the faculty and staff of UAH during that period of time, but the year 2007 marked a milestone in the future development of the UAH campus. The last home in that subdivision was purchased.

Approximately 10 years ago, those homes were sold and moved to new locations. Today, in their place, is a new student union, a pedestrian and bicycle greenway, a new student services building, the Shelby Center for Science and Technology, and a 400-bed residence hall.

COVER STORY

During that series of events — residential homes being moved, construction of new buildings and the development of a transportation infrastructure in the middle of campus — a huge transformation was created that moved UAH away from its origin as an entirely commuter campus status to a more traditional university campus, generally thought of as one with a good fraction of students living on campus and study and gathering spaces.

Now, more students are living on campus. Their mode of transportation has changed. It's become more unusual for students to drive from building to building to change classes. Today, many students favor walking, riding bicycles or skateboards. You will occasionally spot a unicycle moving through the greenway.

Mital Modi, president of the UAH Alumni Association, said she is impressed with the changes taking place on the campus. "It is nice to walk around and get the 'campus' feeling by seeing students walking and even riding their bike through the greenway."

"I am extremely happy to finally see Charger Union on our campus because I remember as a SGA President in 2006, our executive board along with my predecessors from SGA worked hard to get proposals together to build a similar facility since that was the biggest demand of students. It is a great feeling to see that our school officials care about what students want and work towards getting the funds to make things happen."

Visitors and students from the past who are familiar with UAH remark about the huge difference in the character of the campus in recent years. Some recall stories about driving to and from campus for classes, sitting in their car studying between classes. Others said there was not a convenient, well thought out place for the students to socialize. As



UAH has come a long way, both in terms of its physical presence and its student enrollment, since its establishment as an autonomous university in 1969.

one former student remarked about the campus today: "This ain't your daddy's or momma's UAH."

Today, some of the changes are obvious as soon as you drive onto campus. The entrances to the university are marked more clearly. There was an upgrade in signage that provided much needed recognition and way finding for visitors and new UAH students.

One important addition was a space for the students to gather. The Charger Union opened in 2014, and that facility boasts plenty of open space, meeting rooms, a game room and glass walls that connect the interior space to the outdoors. Charger Union has become a significant part of UAH's attractiveness to new students.

Add Greek housing in 2006, the Shelby Center in 2007, an intermodal facility

in 2008, Charger Village, a 400-bed residence hall in 2010, Charger Park in 2012, the Greenway in 2012, expansion of the Nursing Building in 2014 and 2015, and acquisition of University Park in 2015 to house intramurals, athletic team practice, and gatherings, then the infrastructure is in place to expand the student population rapidly.

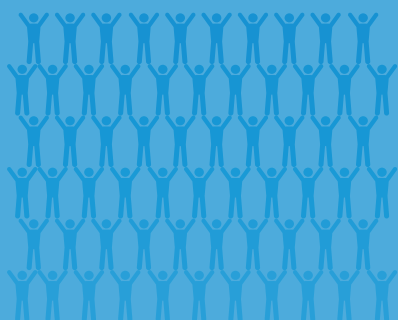
And that is precisely what UAH is experiencing today. For the fall 2016 semester, the university experienced its second straight year of record enrollment. The student population in 2014 was approximately 7,300. For the fall of 2015, that number grew to around 7,900. Currently enrolled students (Fall 2016) number nearly 8,500. This growth also includes the largest freshman class for the second straight year for Fall 2016 — 1,216.

The transition to a more residential campus is having a marked influence on the housing infrastructure for the campus as well. In 2002, there were 678 beds on campus. Today, that number is 1,652, and occupancy is 100 percent. Some students are staying at the Bevill Conference Center and Hotel, and arrangements are being made at apartment complexes near the campus. Meanwhile, plans are under way for a new, 400-bed residence hall, and it is anticipated that the facility will be full when it opens in the fall of 2018.

Not too surprisingly because of the type of students seeking a quality education at UAH, the 2016 class had a record ACT score of 27.6, up from 27.2 the year before. Forty percent of UAH's freshmen achieved a 4.0 or higher on their high school GPA. Another plus — 35 percent of this freshman class scored 30 or higher on their ACT.

8,500

LARGEST STUDENT POPULATION
IN UNIVERSITY HISTORY



2016

Mital says she remembers meeting Dr. Altenkirch for the first time at one of the annual alumni association meetings. "I was impressed within the first few minutes of our conversation by his vision to make UAH the best campus not only in the southeast region, but in the United States. When a leader casts a vision to make something happen, he will do everything in his power until the job is done. Dr. Altenkirch finishes tasks he takes on with such grace and humility and I am very glad we have him as president of our university."

The transition continues. But what hasn't changed are the traditions that made UAH a top tier national university as cited by *U.S. News & World Report* — academic and educational excellence, robust research leadership and experiential learning.

Today, Dr. Altenkirch and his team lead the advancement of the university's growth and reputation. Record enroll-

ment and increasing quality of students enrolling at UAH harks back to the university's strategic plan initiated by the university four years ago. One of the key provisions of that plan was the enrollment of 10,000 students — an important goal that is being approached rapidly.

"Intellectual talent helps a community leverage its human capital and raises the bar for its standard of living. UAH graduates make great contributions to our community in a very broad spectrum — from the arts, to business, education, health, engineering and science," said President Altenkirch. "This has been true since the university's earliest days. I recall a quote from UAH's first president Ben Graves relating the importance of the relationship between universities and the city they serve. He said: 'You can have a great university without having a great city, but I don't think you'll ever have the opposite: You won't have a great city without a great university.' "

7,900

2015

7,300

2014

UAH'S GROWING STUDENT POPULATION

COLLABORATIVE LEARNING

a cornerstone of UAH's academic culture



▲ Students in Dr. Elizabeth Bowman's calculus class enjoy higher success rates thanks to her inclusion of collaborative learning techniques.

UAH earns 'CLEAN' reaccreditation

In mid-December, UAH received a reaffirmation of its accreditation by the Board of Trustees of the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC).

"This reaffirmation of our reaccreditation was achieved through the robust and collective efforts of faculty, staff, and students," said UAH President Robert Altenkirch. "Integral to this process is an ongoing self-evaluation and peer review, and the diligent effort on this accomplishment signifies that UAH has successfully demonstrated compliance with the procedures, standards, and guidelines of the association."

Accreditation, in practical terms, is a stamp of approval that an institution has met an external set of basic criteria for the programs it offers. It also indicates that threshold standards are adhered to and provides a base of academic strength and operational integrity. The outcome of this report means that the institution does not have any ongoing monitoring or reporting, and the next scheduled full reaffirmation of reaccreditation review will take place in 2026.

In addition to enjoying record-breaking enrollment over the past two years, UAH has also experienced a significant increase in retention rates: 2014 saw a jump to 80 percent from 77 percent the year before, while 2015 reached a historic 83 percent. This trend, set to continue, is due in no small part to the implementation of a variety of successful initiatives by the university's Collaborative Learning Center (CLC).

"Its mission is to develop best practices in a collaborative learning environment and make them part of every student's experience to improve how we teach and how students learn," says Dr. Christine Curtis, Provost and Executive Vice President for Academic Affairs.

Early last year, Dr. Dan Rochowiak, an associate professor in the Department of Computer Science, was tapped to be the CLC's director. Along with professor of English Dr. Laurel Bollinger, chair of the Collaborative Learning Advisory Committee, he is responsible for assisting faculty members with incorporating collaborative learning practices into their classes and overseeing the dissemination of collaborative learning information and materials.

So far, the pair has hosted four faculty workshops and launched a video highlighting collaborative learning activities in the Department of Kinesiology. They've also enjoyed widespread support for their mission. "In addition to the 45 First Year Experience classes that are our focus this year, collaborative activities were incorporated in another 115 classes," says Dr. Rochowiak, adding that they hope to add several new workshops, videos, and the groundwork for offering small grants for collaborative learning projects. "With these efforts, we feel confident that collaborative learning will soon become a cornerstone of UAH's educational aims and academic environment."



Gravitational waves provide scientists with **SOUNDTRACK** to the universe

Dr. Tyson Littenberg, a research astrophysicist at NASA MSFC and an adjunct professor at UAH, was at the center of the action when gravitational waves were discovered in the fall by twin Laser Interferometer Gravitational-wave Observatory (LIGO) detectors, located in Livingston, LA, and Hanford, WA. The discovery rippled through popular culture and the scientific world because it provides physical proof of gravitational waves traveling through the universe that had been predicted 100 years ago by Dr. Albert Einstein's general theory of relativity.

Involved in LIGO-related research since 2007, Dr. Littenberg helped the LIGO team to develop sophisticated computer algorithms that combed through data and extracted physical information from the detection once it was made on Sept. 14. After coming to work for UAH's Center for Space Plasma and Aeronomic Research, he applied for Huntsville to become a member of the LIGO Scientific Collaboration. UAH was accepted in 2015.

"Our job is to take a small segment of data that has been identified as being potentially interesting and do an

exhaustive analysis to figure out what the gravitational wave signal looked like in our detectors," says Dr. Littenberg. "It took months of analysis, re-analysis, checking, rechecking, and re-rechecking of the results before we were ready to say with confidence that we had something, and precisely what we had. The stakes are so high, we tried over and over again to prove ourselves wrong until, exhausted, we admitted defeat and said, 'This is really it.'"

Up until now, almost everything scientists know about the universe has come from light; by contrast, gravita-

tional waves come from a previously untested regime of gravity. "Now that we are receiving signals from the gravitational universe, we can learn about what is going on out there with a brand new 'sense,'" he says. "Thanks to this discovery we have finally turned on the 'soundtrack' of the universe. With it we have impressive detail about the collision of two black holes a billion light years away, and we would never have known about it from telescopes – even inconceivably futuristic ones. The thrill is that we know there will be more."

The LIGO discovery has a far-reaching impact on the fields of fundamental physics, astrophysics, and astronomy. "The significance of this discovery cannot be overstated," says Dr. Littenberg. "Gravitational waves are the last missing confirmation of Einstein's general theory of relativity – our most fundamental understanding of how physics works in the macroscopic world. The scientific world changed forever on Sept. 14."

NATIONAL ACADEMY OF SCIENCES ELECTS **DR. GARY ZANK** AS MEMBER

Dr. Gary Zank is a world-renowned space physicist, an eminent scholar, and a distinguished professor who directs UAH's Center for Space Plasma and Aeronomic Research and chairs its Department of Space Science. But even he says the experience of being elected Alabama's only current full member of the National Academy of Sciences (NAS) earlier this year was "surreal."

"It's difficult to both express one's feelings about being elected – it's not something that one works to or aspires to, it simply happens – while wanting to thank everyone for supporting my candidacy," he says. "This truly represents an honor that is shared by all the people I have been fortunate to work with, the people who have been with me in my life – especially Adele Corona – who have encouraged and supported my work and ideas and ambitions. It is not and never can be simply a reflection on me."

Established under a congressional charter signed by President Abraham Lincoln in 1863, the private, nonprofit NAS recognizes achievement in science by election to membership. Along with

the National Academy of Engineering and National Academy of Medicine, it provides science, technology, and health policy advice to the federal government and other organizations. Dr. Zank's membership this May followed his June 2015 receipt of the Axford Medal, the highest honor given by the Asia Oceania Geosciences Society. The medal acknowledges individuals for outstanding achievements in geosciences, as well as "academic excellence and unselfish scientific cooperation" in Asia and Oceania.

Those same words can also be used to describe Dr. Zank's contributions as an educator, a role that he says he finds "very satisfying." Not surprising, many of his graduate students have been recognized in their own right. Among them, Ph.D. candidates Anthony DeStefano and Parisa Mostafavi each received a prestigious NASA Earth and Space Science Fellowship, which provides up to \$30,000 a year in funding for recipients, while Ph.D. candidate Laxman Adhikari was awarded funding from the highly competitive Alabama EPSCoR Graduate Research Scholars Program.

"I enjoy working with students and seeing them blossom, especially as they learn to do research and ask good questions, and develop the skills to formulate problems and to solve them," he says. That can often mean long days and late nights, however, when the many hours he spends on his research are factored in; currently he is working with UAH post-doctoral student Dr. Xiaocan Li on a theoretical computational model to investigate the results of NASA experiments on a long-distance solar space propulsion system.

"My typical routine is to do the research after work, generally five nights or more a week and typically until 1 a.m. or later," he says. That intense schedule is not likely to get any easier, either, as news of his NAS membership spreads – though having more on his plate is not something Dr. Zank spends time worrying about. "Research is something that I do for pleasure, and so an evening working on an interesting problem is as pleasurable as just about anything else that I can think of," he says. "I cannot see myself ever slowing down."

SUPERSONIC WIND TUNNEL

scales up for action

UAH's \$2 million wind-tunnel system is ready to undertake supersonic flow research with Mach numbers up to 3.

The tunnel, which is located in the Air Breathing Test Cell at UAH's Johnson Research Center, makes UAH one of an elite handful of universities nationwide with such capabilities. It has passed testing at a test-bed speed of Mach 1.6 at an air speed of approximately 1,230 miles per hour, and it is being outfitted to reach Mach 3 at an air speed of about 2,300 mph.

When fully plumbed for Mach 3, air for the tunnel will be supplied by four 16-ton, 14-foot-long tanks valued at \$1 million that were donated to the university by the U.S. Air Force's Arnold Engineering Development Complex in Manchester, TN, in addition to a fifth tank onsite. The four 16-ton tanks started life as rocket fuel storage and will provide 50 cubic meters of compressed air storage at supply pressures up to 2,500 pounds per square inch.

"An elaborate valve system controls the flow," says Dr. Phillip Ligrani, a UAH eminent scholar in propulsion and a professor of mechanical and aerospace engineering, as well as the project's principal investigator. "This will ensure high-enough flow rates and pressures to reach the required supersonic speeds."

Air from the tanks is routed through pressure-regulating valves to the 9.6-inch by 4-inch test bed, where it rushes past objects under research and then is exhausted outdoors through a noise-reduction baffle system. Test applications for the wind tunnel include supersonic

engine intakes, scramjets and hybrid space vehicles and components.

"As with previous tests, we were all pleased regarding the smooth and relatively quiet operation of the facility, which we attribute in part to the design of associated wind-tunnel components," says Dr. Ligrani. "This facility enhances the ability of UAH to conduct high-quality aerospace, aerodynamic, and aeropropulsion research in order to advance the state of the art in these different areas."

For sophomore mechanical engineering major Daniel Corey, being part of the design, construction, and testing of the facility as an undergraduate

has been an important facet of his education. "A lot of the time I'll hear people from other schools I know talking about how they have a job at Wendy's or McDonald's or whatever," he says, "and I have a job on a supersonic wind tunnel."

Now he's hoping that experience will pay off as he looks ahead to a landing a job as a professional engineer. "At the career fair this past fall, I was talking to various employers about maybe getting an internship next summer," says Corey. "This obviously looks really good for any sort of engineering work, because it's relevant to my degree and to what I might be doing at their company."



To see a short video about the wind tunnel, visit uah.edu/video-wind-tunnel.

HIGHLIGHTS FACULTY

Mr. Vinny Argentina, Assistant Professor of Art, and Dr. Chao Peng, Assistant Professor of Computer Science, were awarded a Cross College Faculty Research Grant for Serious Game Development for STEM Learning.

Dr. Nikolai Pogorelov, Professor of Space Science, was appointed to the Blue Waters Science and Engineering Team Advisory Committee.

Dr. Deborah Heikes, Chair of the Department of Philosophy, published her book *Rationality, Representation, and Race* with Palgrave MacMillan.

Dr. Anne Marie Choup, Associate Professor of Political Science, had her article "Beyond Domestic Violence Survivor Services: Refocusing on Inequality in the Fight against Gender-Based Violence in America" published in the *Bulletin of Latin American Research*.

Dr. Yongchuan Bao, Associate Professor of Marketing, was selected to serve on the Editorial Review Board of the *Journal of Business Research*.

Ms. Kathryn Jill Johnson, Associate Professor of Art History, had her paintings included in exhibits at the Visual Art Exchange Gallery in Raleigh, NC, the Giles Gallery at Eastern Kentucky University in Richmond, KY, and at the Next Gallery in Denver, CO. Her artwork "There's Nothing Worse Than a Staunch Woman" was also featured in the *Pinch Literary Journal*.

Dr. Sophia Marinova, Associate Professor of Management, was selected as an Outstanding Manuscript Reviewer by the *Journal of Business Research*.

Dr. Rita Ferguson was selected to serve as an advisory group member on the Palliative and Hospice Nursing Professional Issues Panel, convened by the American Nurses Association and the Hospice and Palliative Nurses Association. She was also selected for onsite evaluator training by the Commission on Collegiate Nursing Education.

Dr. Marlena Primeau, Clinical Associate Professor of Nursing, was selected as a member of the Fulbright Scholarship Interview Committee.

Dr. Robert Griffin, Assistant Professor of Atmospheric Science, established the Alabama Remote Sensing Consortium, a formal consortium of research universities with exclusive access to research-grade hyperspectral data from Teledyne Brown's MUSES platform.

Dr. Jatinder Gupta, Professor of Information Systems, published a paper entitled "A Heuristic for Maximizing Investigation Effectiveness of Digital Forensic Cases Involving Multiple Investigators" in *Computers & Operations Research*.

Mr. David Kyle, Lecturer in the Department of Kinesiology, was selected as a member of the Elite Paratriathlon Selection Committee, which is responsible for choosing elite athletes to represent Team USA at international Paratriathlon events.

Dr. Beth Quick, Dean of the College of Education, was chosen to serve as a member of the American Association of Colleges for Teacher Education's Committee on Membership Development and Capacity Building for a three-year term.



◀ **Dr. Rhonda Gaede**, Associate Professor of Electrical & Computer Engineering, continued to serve as director of UAH's Tech Trek, a weeklong residential STEM camp and American Association of University Women program, whose third annual outing was attended by 65 rising eighth grade girls from 39 schools across 17 Alabama counties.



[Photo/image provided courtesy of the Naval Research Laboratory.]

Dr. Qiang Hu, Assistant Professor of Space Science, visited the Naval Research Laboratory in Washington, D.C., in early October to discuss collaborative work on magnetic flux ropes in space plasmas.

Dr. Mikel D. Petty, Associate Professor of Computer Science, has been named editor-in-chief of the journal *SIMULATION: Transactions of the Society for Modeling and Simulation International*.

Dr. Liwu Hsu, Assistant Professor of Marketing, received the Best Paper Award at the 2016 International Society of Franchising Conference for "The impact of marketing expenditures on

outlet performance in franchised channels," which he co-authored.

Dr. Beth Quick, Dean of the College
Dr. Jason O'Brien and Dr. Andrea Word-Allbritton, faculty members of the College of Education, delivered the first of 16 professional development workshops to prepare educators to work effectively with English Language Learners. Their efforts are funded by Project HAP-PENS, a five-year, \$1.1 million professional development grant from the Office of English Language Acquisition at the U.S. Department of Education.

Dr. Pavica Sheldon, Assistant Professor of Communication Arts, published a paper entitled "Facebook friend request: Applying the theory of reasoned action to student-teacher relationships on Facebook" in the *Journal of Broadcasting & Electronic Media*.



▲ **Dr. Lillian Joyce**, Chair of the Department of Art, Art History, & Design, authored a chapter in *Icon, Cult, and Context: Sacred Spaces and Objects in the Classical World*, published by UCLA's Cotsen Institute of Archaeology Press. Her article "Roma and the Virtuous Breast" also appeared in the annual *Memoirs of the American Academy in Rome*.

HIGHLIGHTS RESEARCH



- ▲ **The UAH Rise School**, a College of Education outreach unit, received a \$50,000 grant from the Daniel Foundation of Alabama to purchase books, adapted books, and technology to promote literacy.

Dr. Phillip Farrington, Professor of Industrial & Systems Engineering and Engineering Management, was presented with a certificate of appreciation signed by the Alabama governor upon completing his second term on the Alabama Robotic Technology Park Executive Board. He was also awarded two grants from NASA MSFC for his work in their Aerospace and Systems Engineering Program (\$300,000) and for system discipline engineering research (\$56,000).

UAH's Propulsion Research Center (PRC) received a \$100,000 pressure vessel donation from the U.S. Air Force's Arnold Engineering Development Complex in Tullahoma, TN, as part of its Rocket Test Facility upgrade. PRC Director Dr. Robert Frederick was awarded \$577,253 from the Missile Defense Agency to investigate game-changing kill vehicle/interceptor technology.

Dr. Andrea Word-Allbritton, Assistant Professor of Education, received a \$36,000 grant from the Alabama Commission on Higher Education for the Success Through Academic Research Project, which supports individualized international research studies for four P-12 teachers.

UAH's Center for Management and Economic Research received an award from the Alabama Technology Network to serve as a sub-recipient of their NIST Manufacturing Extension Partnership program. The five-year award includes federal, state, and client fee funds of approximately \$700,000 annually.

Mr. David Arterburn, Director of UAH's Rotorcraft Systems Engineering and Simulation Center, was awarded one of seven initial contracts from the FAA Unmanned Aerial Systems Center of Excellence to study Ground Impact Sever-

ity of Small UAS totaling \$96,500. **Clay Colley**, a principal research scientist at the Center, received a \$221,000 award from Boeing to provide student support to the Boeing Huntsville Design Center.

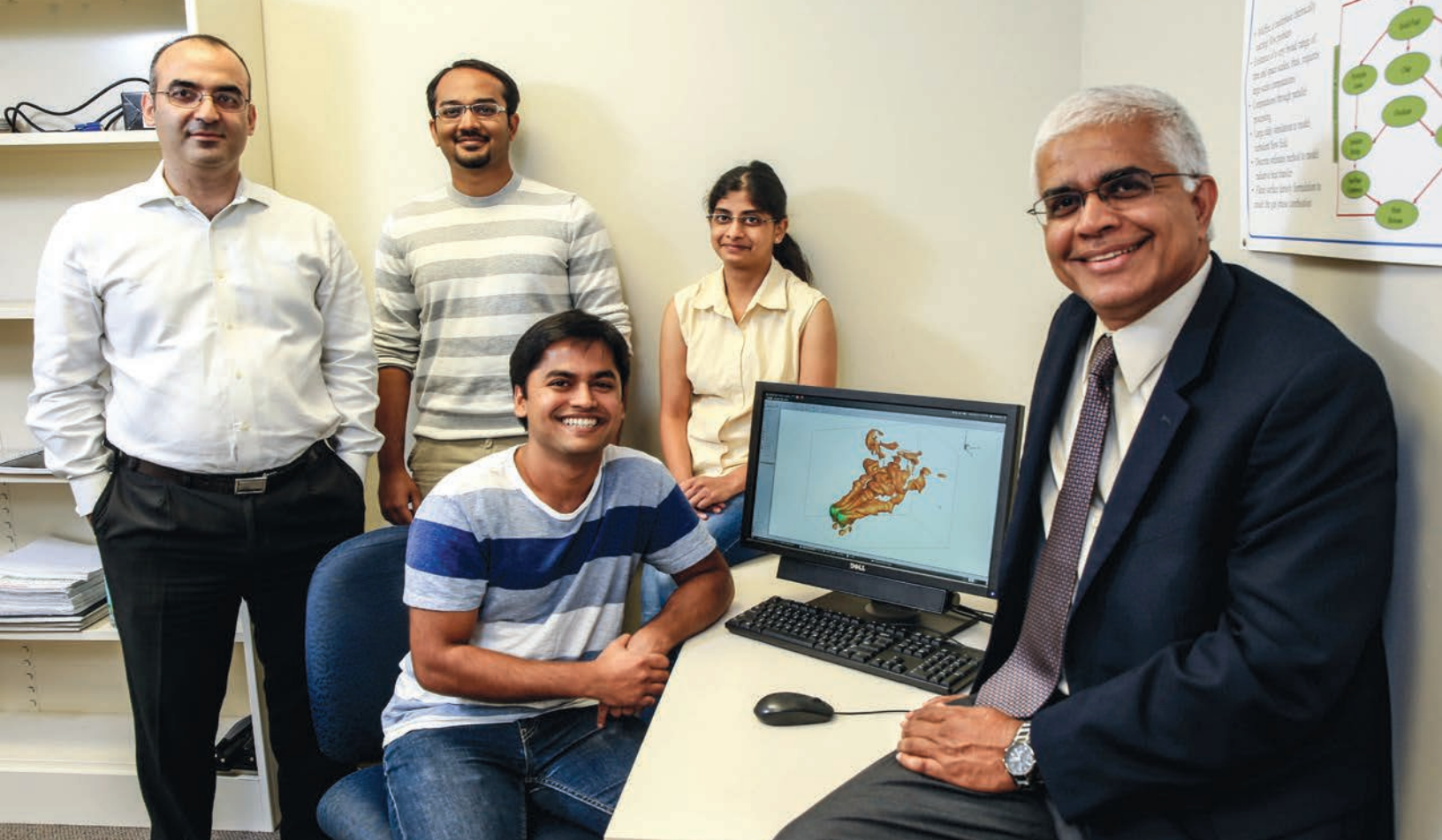
Dr. Michael Anderson, Associate Professor of Civil Engineering, and Cambridge Systematics received a one-year \$250,000 grant from the Alabama Department of Transportation to continue to develop the Alabama Safety Planning tool.

Dr. Jacob Heerikhuisen, Associate Professor of Space Science, received a three-year, \$461,264 grant for his NASA Heliophysics Supporting Research proposal entitled "Pick-Up Ions and Energetic Neutral Atoms: Implications for the Termination Shock."

Dr. Dawn Uteley, Associate Professor of Industrial & Systems Engineering and Engineering Management, was awarded \$87,437 from Torch Technologies for missile science and technology strategic systems research.

Dr. Krishnan Chittur, Professor of Chemical Engineering, started a company named GeneCapture that won \$100,000 in Alabama Launchpad's inaugural LEAP Alumni Startup Competition. The company is developing an affordable, portable instrument to screen quickly for dozens of pathogens.

Dr. Lenora Smith, Assistant Professor of Nursing, was awarded a \$9,915 New Faculty Research Grant for "There's an App for That? Exploring the Potential of Interactive Apps to Improve Cognitive Decline for the Individuals with Dementia and their Caregivers."



Dr. Chao Peng, Assistant Professor of Computer Science, received a \$519,088 grant from the U.S. Army Research Lab for his research on 3-D virtual data visualization, and a \$174,996 grant from the National Science Foundation for his proposal entitled "GPU-Accelerated, Multi-Display Applications for Large CAD Model Visualization on a Commodity Desktop."

Dr. Tommy Morris, Director of UAH's Center for Cybersecurity Research and Education, received a three-year,

\$500,000 grant from the National Science Foundation's CyberCorps program to develop virtual models of four industrial control systems for use in cybersecurity research and education.

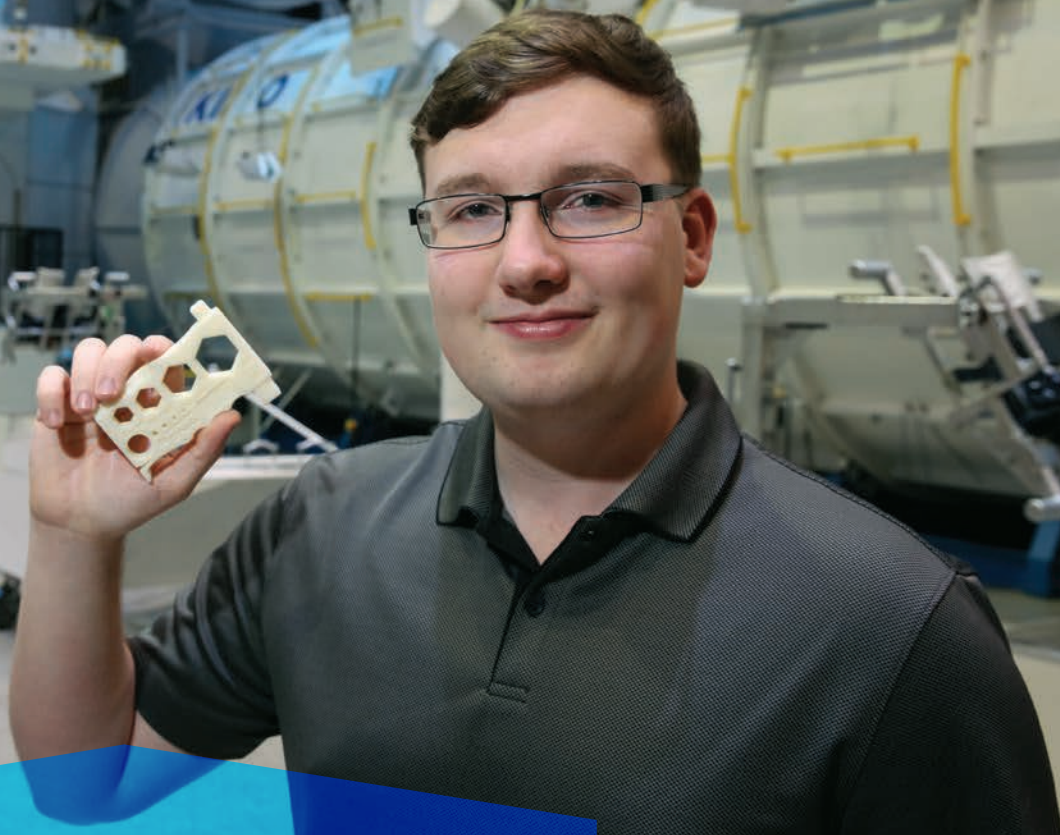
Dr. Elise Adams, Associate Professor of Nursing, received the \$10,000 Hill-Rom/Celeste Phillips Family-Centered Maternity Care Research Award from the Association of Women's Health, Obstetric, and Neonatal Nurses for her research entitled "Suctioning at Birth: A Feasibility Study of the Use of the Blue Bulb Syringe."

▲ **Dr. Shankar Mahalingam**, (far right), Dean of the College of Engineering, and **Dr. Babak Shotorban** (far left), Associate Professor of Mechanical Engineering, received a grant for \$179,999 from the National Science Foundation for their proposal entitled "Merging of Horizontally and Vertically Separated Flames in Wildland Fires."

Dr. Marsha Howell Adams, Dean of the College of Nursing, was elected to the Board of the National Children's Advocacy Center. She was also elected chair of the State of Alabama Association of Colleges of Nursing, and she was awarded a grant for \$30,000 from Blue Cross and Blue Shield for the proposal entitled "Telehealth: Preparing Nursing Students for the Future."



HIGHLIGHTS ACADEMIC



Robert Hillan (pictured), an aerospace engineering major, designed a multipurpose precision maintenance tool that took first place in the Future Engineers Space Tool Challenge, while **Thomas Salverson**, a mechanical and aerospace engineering double major, designed an expandable pod that took first place in the Future Engineers Think Outside the Box Challenge.

Joseph Buckley, Daniel Jones, Amit Patel, Brian Roy, Amy Parlett, Claire Staschus, Andrew Hiatt, Matthew Hitt, Joshua Lang, Kevin Schillo, and Mitchell Rodriguez, members of UAH's Propulsion Research Center Student Association, traveled to Salt Lake City in July to present papers at AIAA's 2016 Propulsion and Energy Conference.

Adam Clayton, a sophomore majoring in Earth System Science, was named UAH's first NOAA Hollings scholar.

Brandi Cook and Preston Smith, master's students in psychology, along with psychology undergraduate students **Aniek Remmerswaal, Autumn Brooks, Lauren Winders, Chastaney Pope, and Ayla Kirby**, listened to more than 60 hours of jailhouse phone calls on behalf of a Washington, D.C.-based law firm as part of an evidence review for a pro bono murder case.

Kareen Omar, a senior Honors student double-majoring in aerospace

engineering and applied/theoretical physics, won the Frank J. Redd Student Paper Competition – and \$10,000 – at the 30th annual AIAA/Utah State University Conference on Small Satellites.

Ryan Connelly, a master's student in the Department of Political Science, completed an internship with NASA MSFC's Public and Employee Communications Office and their Space Launch System Strategic Communication Office.

Claire Birkholz, a senior Honors finance major, and **Kieran "KJ" Kelly**, a double major in accounting and German, spent the spring semester abroad in Lüneburg, Germany, where they lived with a host family, took classes, and traveled to Amsterdam and Prague.



▲ **UAH's Space Hardware Club** applied and was accepted to NASA's Amateur Radio on the International Space Station program, which allowed them to uplink to the ISS so that local middle school students could speak directly with American astronaut Tim Kopra.

Samer Al-Nussirat, a Ph.D. candidate in physics, was awarded a three-year NASA Earth and Space Science Fellowship for work entitled "Production of energetic emission and acceleration of particles in thunderstorms: Terrestrial gamma-ray flashes."

Claudia Mesnil-Baez, a senior elementary education major, and **Dr. Monica Dillihunt**, Associate Professor of Education, presented "It takes a Village: Can Faith Based Organizations Help in Closing the Achievement Gap of Black and Brown Males," at the 2016 annual meeting of the American Education Research Association in Washington, D.C.

Angela Caires and **Mark Reynolds**, Clinical Assistant Professors of Nursing, graduated in the spring with their Doctor of Nursing Practice degrees.

Bobby Marsh, a sophomore economics major, spent 12 weeks over the summer in Rocky Gap, VA, working as an operations coordinator for the Appalachian Service Project, a Christian home-repair ministry.

Lina Garrard, a senior nursing student, presented her research poster entitled "Identification, Assessment, and Referrals for Women Experiencing Intimate Partner Violence: An Educational Session for Maternity Nurses" to representatives from federal funding agencies and members of Congress at the 20th Annual Posters on the Hill in Washington, D.C.

Kailey Franks, a fine arts major, received a fellowship to attend the summer workshop "Experiments in Screenprint" at Anderson Ranch, CO, while fine arts major **Aoife McDonnell** received a work-study scholarship to attend the summer workshop "Drawing with the Press" at Penland School of Crafts, NC.

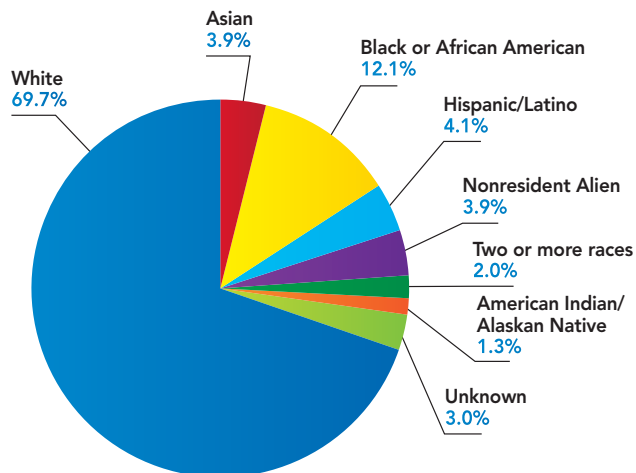
Graduate students **Anthony DeStefano**, **Senbei Du**, and **Kevin Schillo** and undergraduate students **Chris Helmerich**, **Chris Layne**, **Melissa Martin**, **Devon Suns** and **Akifumi Takeyama** in the Department of Space Science spent two weeks in Hermanus, South Africa, and Neustrelitz, Germany, in partnership with the South African National Space Agency and the German National Aeronautics and Space Research Center. The students were accompanied by faculty and staff from UAH's Center for Space Plasma and Aeronomic Research, including center director **Dr. Gary Zank** and research scientist **Dr. Peter Hunana**.

Undergraduate students **Adam Alexander**, **Daniel Bernues**, **Joanna Burke**, **Shawn Edwards**, **Nancy Gordillo-Herrejon**, **Robert Hancock**, **Jennifer Li**, **Justin Oakley**, **Adam Rogers**, and **Nick Werline** all received full cybersecurity scholarships from the National Science Foundation's CyberCorps: Scholarships for Service program.

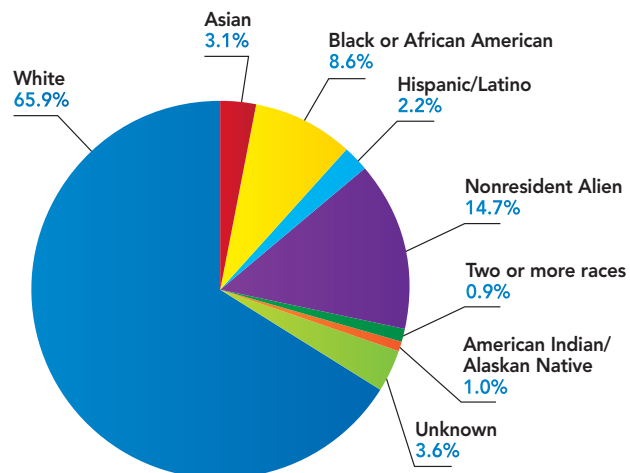


▲ **Adam Goodson**, a senior history major, received a Critical Language Scholarship that enabled him to spend two months over the summer studying Arabic in Meknes, Morocco, before spending the fall semester abroad in Amman, Jordan.

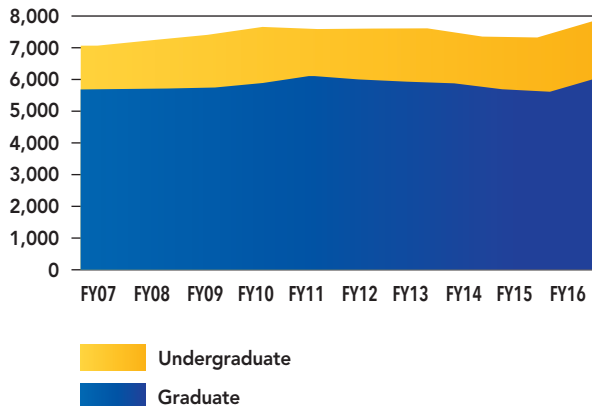
Undergraduate Student Composition FY16 (Fall 2015)



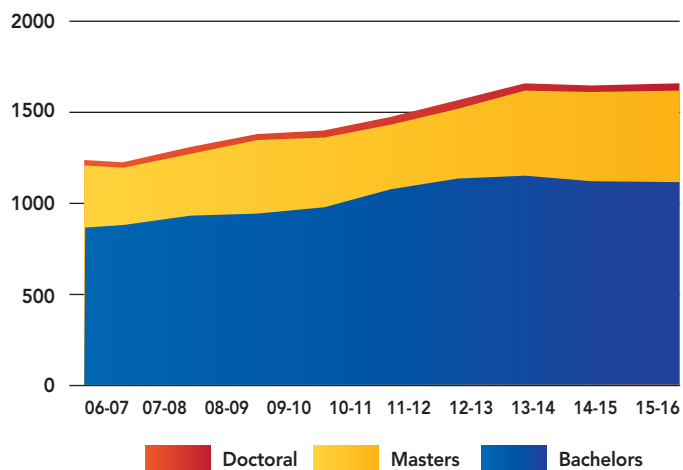
Graduate Student Composition FY16 (Fall 2015)



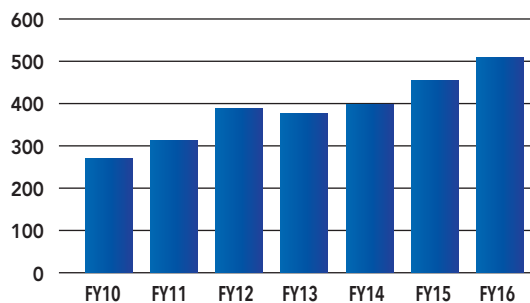
Enrollment FY07 (Fall 2006) to FY16 (Fall 2015)



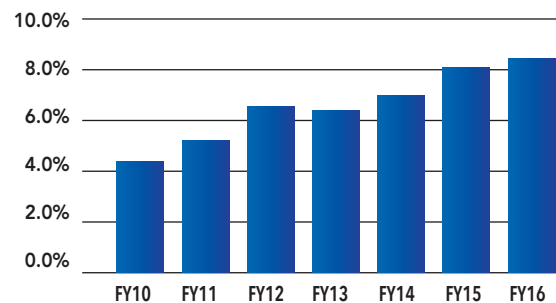
Undergraduate & Graduate Degrees AY06-07 to AY15-16



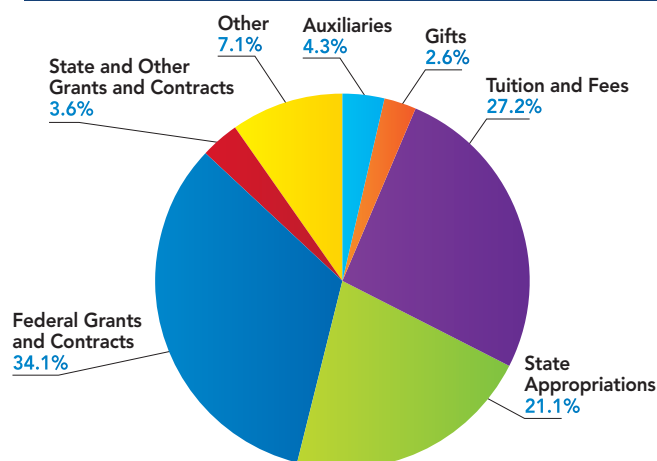
Undergraduate Honors Enrollment FY10 (Fall 2009) to FY16 (Fall 2015)



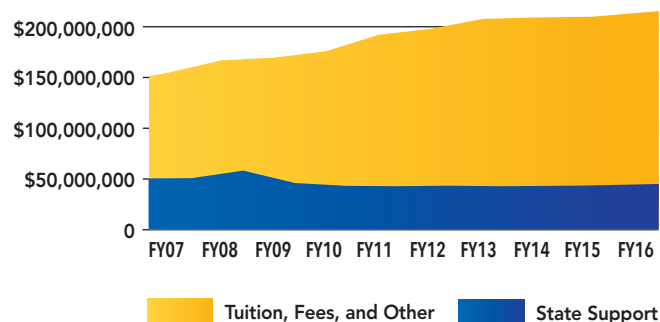
Honors as % of Undergraduate Enrollment FY10 (Fall 2009) to FY16 (Fall 2015)



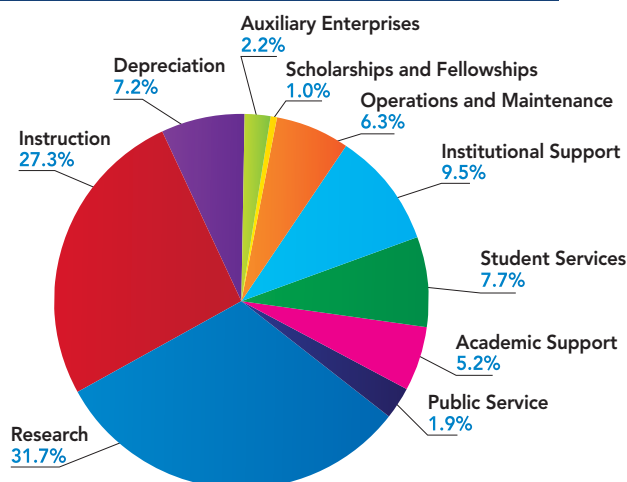
FY16 Revenue \$212,907,733



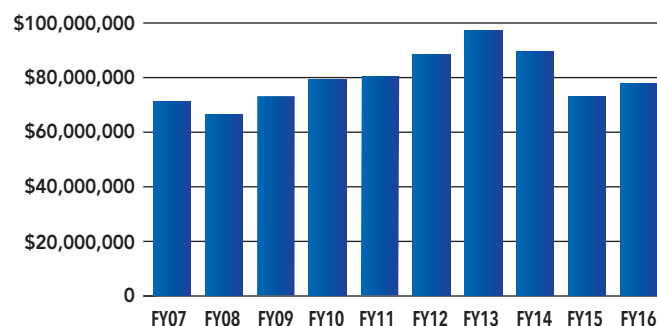
Operating Revenue FY07 to FY16



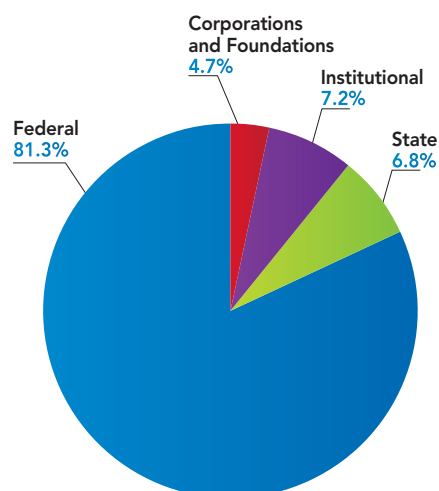
FY16 Expenditures \$212,907,733



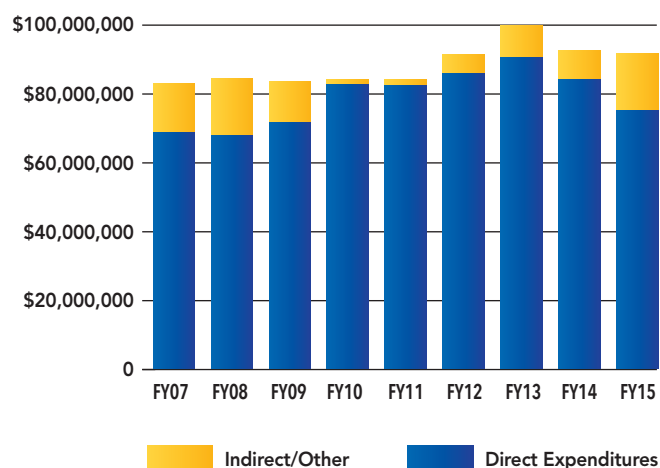
Grant and Contract Expenditures (Research, Instruction, and Public Service)



FY16 Direct Research Expenditures by Source \$67,422,411



Total R&D Expenditures as Reported to NSF* (www.nsf.gov/statistics/)



*FY16 not yet reported to NSF

REDEFINING WHAT'S POSSIBLE



Dr. Dorothy Davidson, a successful entrepreneur who has built several businesses from the ground up, will donate \$5 million and her name in support of UAH's "startup incubator," a facility that will supply innovative and inventive talent with the resources necessary to succeed.

Although culture dictated a domestic trajectory for young women of her cohort, Dorothy Davidson envisioned a very different future for herself – one as a working professional. "I knew I didn't want to be what they said women should be, and that was a housewife and a mother, I wanted to be different," she says. "I had nothing against that, but it wasn't me." Instead, she worked her way through college as a switchboard operator, bookkeeper's assistant, and library assistant, earning a degree in mathematics before going to work as a research mathematician for the U.S. Air Force and

then as a Systems Engineer in support of foreign military command operations for NATO countries.

It was while working in Europe that she met Dr. Julian Davidson, a pioneer in the space and missile defense industry. After writing letters to one another, she in Germany and he in the United States, the pair decided to marry. Davidson returned to the United States where they joined professional forces to co-found Davidson Technologies Inc. (DTI). For the next 20 years, the Davidsons grew DTI into one of the country's premier providers of aerospace and missile defense expertise to government agencies. When her husband passed away in January of 2013, Davidson stepped up to lead the company as a Woman-Owned Small Business. "I had no intention of taking his place," she says, "but when I looked around at the over 250 employees at DTI's memorial service for him, I decided that the company would not be sold and that instead, I would come in and run it."

The success that DTI has enjoyed since then is both a testament to Davidson's business acumen, honed over

a 60-year career, and the culmination of her modern vision for herself as a young woman growing up in post-World War II United States. Now she is lending her name and her support to help visionaries like herself achieve their own professional goals – with a \$5 million gift to UAH in support of the D.S. Davidson Invention to Innovation Center (I²C) business incubator. In combination with funding from the State of Alabama, the Madison County Commission, and the City of Huntsville, along with financial support from the UAH Foundation and the U.S. Economic Development Administration, the 45,000-square-foot facility will be located on the UAH campus and provide resources for inventors and entrepreneurs in the innovation process. Access to labs, networking opportunities, office space, student projects, and other essential business resources will help fully develop and launch ideas to entrepreneurial fruition.

"I've started businesses myself and I know how hard

it is when you don't have the support you need," she says. "Most people fail because, while they have the technological expertise, they don't have the necessary business skills." In the case of the I²C, small-business owners will have the best of both worlds; the incubator will be physically connected to UAH's College of Business Administration and in close proximity to Cummings Research Park. "They won't necessarily compete with the businesses in Huntsville, but they will be coming out with innovative ideas to improve what's already here with help from the university," she says. "That will make the incubator an open door to creating small businesses, giving those with innovative ideas a place to go, get set up, and develop more technology."

The I²C is hardly the first recipient of the Davidsons' largesse. Included among the many projects they have funded are the Davidson Center for the Arts at the Huntsville Museum of Art and the Davidson Center for Space Exploration at the U.S. Space & Rocket Center, which pays homage to Alabama's engineers and their role in the nation's space program. Over the quarter-century that she has lived in Huntsville, Davidson has given her support to schools for underrepresented students and those with learning differences; programs that help empower and advocate on behalf of young girls; job training for teenagers in foster care; and scholarships for undergraduates in both the liberal arts and engineering.

Davidson's attention has been directed toward children, helping people, or education. "My intention with regard to UAH was to do something in the business field that also supports technology, and so when the incubator came up, it was perfect." Moreover, as a long-time Alabama resident – and booster – she is confident that the I²C will raise the region's and the state's profile as a high-tech business hub capable of holding its own against any other high-tech research areas in the country. "Our Research Park already has a reputation as the second largest in the nation," she says, "and I think the incubator will make it number one."

Certainly the odds of Huntsville becoming the number-one research hub in the nation are dramatically higher now that Davidson has become involved. After all, her life is an example of defying expectations to redefine what's possible. "I probably get it from my grandmother," says Davidson with a laugh. "She always said I could do whatever I set my mind to."



Artistic renderings of the future D.S. Davidson Invention to Innovation Center.

ATHLETICS



MEN'S BASKETBALL

► The Chargers won an unprecedented sixth regular season GSC title in the past seven years in 2016 en route to hosting the NCAA South Regional and appearing in the Division II Round of 16 for the fourth time in six seasons.

► Greg Gardner was selected as a GSC Top 10 award winner, and both he and Seab Webster were honored as both All-Region and All-GSC performers. Additionally, head coach Lennie Acuff was selected as the GSC Coach of the Year for the eighth time in his career.

WOMEN'S BASKETBALL

► Thanks to a strong record at Spragins Hall where the Chargers went 11-4, UAH earned yet another berth in the GSC tournament after finishing sixth in the regular season.

► The team placed 12 of its players on the GSC Academic Honor Roll, and senior Halle Jarnagin was named a CoSIDA Academic All-American, one of the highest academic honors.

HOCKEY

► UAH – which appeared on national television at home on Jan. 8 for the first time – completed its third season in the Western Collegiate Hockey Association and head coach Mike Corbett, totaling a program-best winning percentage in 2015-16.

► The Chargers boasted a total of six WCHA Scholar Athletes during last season's campaign, which included James Block, Chad Brears, Brent Fletcher, Max McHugh, Brandon Parker and Anderson White.

BASEBALL

► UAH finished as the runner-up at the GSC Championships this past spring, accumulating a record of 33-20 for the program's fifth straight season with 30 or more wins under head coach Hunter Royer.

► For the second year in a row, the UAH baseball team had a player taken in the MLB First-Year Player Draft: pitcher Wilson Adams was selected in the thirty-second round by the Milwaukee Brewers as the program's eleventh overall selection in the draft.

SOFTBALL

► The Chargers earned their fourteenth straight appearance in the NCAA tournament, advancing to the final of the South 1 Regional, and the team posted yet another 40-win season.

► The team featured four All-GSC and All-Region honorees, and Kaitlyn Bannister, Tyler Harrison, and Abby Roberts were all selected as All-American performers.

MEN'S LACROSSE

► UAH's inaugural season started off in memorable fashion with an overtime victory in the team's first-ever game. Kevin Coppinger led the season with 18 goals and 11 assists for a total of 29 points.

WOMEN'S LACROSSE

► UAH posted a 14-4 overall record in its inaugural season and reached the GSC Invitational Championship, while leading the nation as a team with 16.33 goals per game.

► The Chargers – who garnered an IWLCFA Team Academic Award in 2016 – had a trio of players garner postseason

awards, as Nicole Federovitch earned GSC Freshman of the Year and was joined as an All-GSC honoree by Megan Hartnett and Natalie Pachinger.

MEN'S TRACK & FIELD

► Jacob Rogers earned Second Team All-American for his performance in the javelin throw at Outdoor Nationals, with UAH earning third place as a team at the PBC Championships.

WOMEN'S TRACK AND FIELD

► Seniors Katelin Barber and Ackiesha Burnett garnered indoor All-American status during the first half of the season this past spring, with Burnett also becoming an outdoor All-American. The team finished fifth at the PBC Championships.

WOMEN'S TENNIS

► The Chargers garnered the program's first-ever national ranking, checking in at No. 29 in the country after winning 11 matches – including a strong 7-3 mark in GSC play – and the team's resume included a strong win over No. 15 Valdosta State.

► Marleen Gort, Marta Briega, and Cristina Cabanas earned All-GSC status for their terrific play.

MEN'S TENNIS

► UAH qualified for the GSC tournament, and the team featured four players – Elliot Hopson, Rodrigo Palomino, Noah Pring, and Ian Wisener – who earned scholar athlete awards from the ITA.

MEN'S CROSS COUNTRY

► The team completed the season with a second-place finish at the GSC Championships and a fourth-place

standing at the NCAA South Regional, with the squad boasting First Team All-GSC honorees Benjamin Knox and Brydon Groves-Scott.

WOMEN'S CROSS COUNTRY

► The team posted a fourth-place standing at the GSC Championships this past fall, paced by First Team All-GSC honorees Angel Sillivant and Marlee Mason. Mason also earned GSC Freshman of the Year.

VOLLEYBALL

► The UAH volleyball team posted its third straight winning season with a 16-15 overall record in 2016 under the direction of first-year head coach Cade Smith, while boasting an 11-4 home record for a 23-7 record inside Spragins Hall over the past two seasons.

MEN'S SOCCER

► UAH earned its fourth consecutive trip to the GSC tournament under the direction of new head coach Chris Kranjc. The squad featured three All-Conference players, while James Narke and Hermann Bjornsson were both named All-Region honorees and Bjornsson was additionally selected as an honorable mention All-American.

WOMEN'S SOCCER

► UAH started the season off strong with four wins in its first five games, including a signature victory over No. 10 Carson-Newman. Alexcia Alexander and Maddie Maurice were selected as All-Region players, and Melody Hoernschemeyer garnered CoSIDA Academic All-District recognition.



The UAH College of Arts, Humanities, and Social Sciences presented *Peace on Earth: A Holiday Spectacular* at the Von Braun Center Concert Hall on Friday, Dec. 2, 2016. Sponsored by Hewlett Packard Enterprise, the family-friendly holiday concert featured Grammy-nominated a cappella singing group Committed, the Huntsville Symphony Orchestra, the Huntsville Community Chorus, and the U.S. Army Materiel Command Band.



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