



THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

PRESIDENT'S ANNUAL REPORT 2017

# INVENTION TO INNOVATION

BUSINESS INCUBATOR WILL HAVE FAR-REACHING CONSEQUENCES



## INSIDE: REFLECTIONS

A message from the President



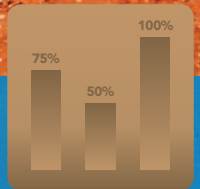
## HIGHLIGHTS

A brief recap of achievements



## DATA POINTS

An infographic year in review





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THE UNIVERSITY OF  
ALABAMA IN HUNTSVILLE  
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**FALL 2017  
COMMENCEMENT**



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HUNTSVILLE ADMINISTRATION

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# features



## UP FRONT

UAH's D.S. Davidson Invention to Innovation Center (I<sup>2</sup>C) will celebrate, support, and enhance the greater Huntsville region's entrepreneurial environment.



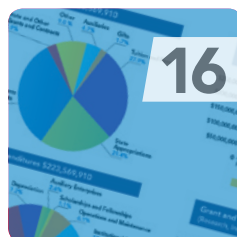
## NEWS BRIEFS

This past year's top stories included a \$20 million NSF EPSCoR grant, a new Pei-Ling Chan Eminent Scholar, the purchase of Executive Plaza, and the first joint detection of gravitational and light waves from the same cosmic event.



## HIGHLIGHTS

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



## DATA POINTS

An infographic look at the year in review.

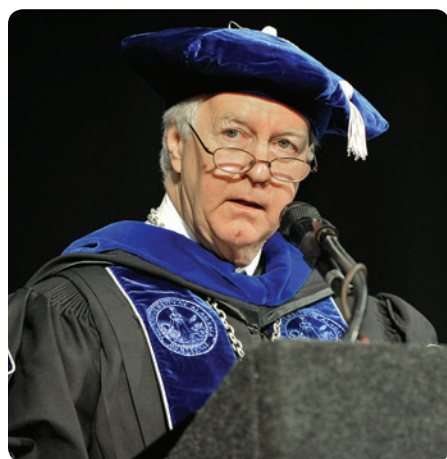
## 18 ADVANCEMENT

Toyota USA Foundation's generous \$150,000 grant to Tech Trek Alabama will introduce more girls to STEM educational opportunities.

## 20 ATHLETICS

The Athletic Department shares a summary of the Chargers' achievements.

## Technology incubator, eminent scholar, land purchase highlight campus advances



During 2017, numerous advances have taken place for our university.

Alabama Gov. Kay Ivey led a groundbreaking ceremony in October for a technology-oriented business incubator that will be strategically located adjacent to the College of Business.

The D.S. Davidson Invention to Innovation Center (I<sup>2</sup>C) will take advantage of the unique strengths that exist here for local innovation.

Huntsville is built by entrepreneurs who have scaled their businesses through persistence, timing, and hard work. This region embodies and celebrates small business success – a grassroots movement that will propel the next phase of innovation in the years to come.

Entrepreneurship is a culture driven by people within a community with support from catalysts serving as

platforms that accelerate new venture creation. For Huntsville these include UAH, Redstone Arsenal, Cummings Research Park, the HudsonAlpha Institute for Biotechnology, and many other organizations empowering entrepreneurs with education and opportunities to fly on their own.

The I<sup>2</sup>C's mission will celebrate, support, and enhance the greater Huntsville region's entrepreneurial environment through collaborations and the creation of pathways to extended networks of resources including mentors, investors, and strategic partners who will ultimately contribute to building scalable and investable businesses.

We are thankful to local entrepreneur Dorothy Davidson, who along with funding from the UAH Foundation, helped push the project into a critical mass with a \$5 million gift.

Construction is well under way and occupancy should occur in early 2019.

Related to that project is the hiring of I<sup>2</sup>C director Rigved Joshi. He comes to UAH after career experience in venture capital, private equity, startup incubation, and intellectual property monetization. Recently, he managed new ventures, strategy, and innovation at Vanderbilt University.

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Dr. Jerome Baudry joined us in 2017

as the Pei-Ling Chan Eminent Scholar in the Department of Biological Sciences. He received his Ph.D. in molecular biophysics with the highest honors from the University of Paris, UPMC/Sorbonne Universities in France. He subsequently joined the University of Illinois at Urbana-Champaign as a post-doctoral fellow. After his postdoctoral work, Dr. Baudry joined the pharmaceutical industry as a research scientist, and then returned to the University of Illinois to accept a senior research scientist position. In 2008, he joined the University of Tennessee, Knoxville, and the UT/Oak Ridge National Lab's Center for Molecular Biophysics.

The addition of Dr. Baudry will be a great addition to UAH and Huntsville's burgeoning biotechnology economy.

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Another significant advance in the long-term development of our campus is our purchase of Executive Plaza, 58 acres on Sparkman Drive directly across from the Bevell Conference Center & Hotel. It was a 1970s commercial development that had lost its luster in the second decade of the 21st century.

It is our vision that we will create our own "college-town environment" in that location, something that exists at other universities but is lacking at UAH.

You will be hearing more about our plans for that expansion during 2018.

I<sup>2</sup>C

UAH's technology-focused business incubator will have a far-reaching impact long into the future.

Inc. Magazine reported that about one-third of all business incubators in North America have ties to a university. While that fact gets lost in the all-encompassing world of commerce, it didn't escape the purview of UAH President Robert Altenkirch. He had established successful university-affiliated business incubators at two earlier stops in his career at Mississippi State University and New Jersey Institute of Technology.

His establishment of a technology-based business incubator during the past year will have a far-reaching impact long into the future.

A university offers an abundance of resources to feed an incubator. Ideas from faculty, staff, and students. Inexpensive student labor. Investment in expensive equipment. But the greater Huntsville area offers much more in innovation and intellectual property. A

tremendous flow of ideas is generated at the federal laboratories on Redstone Arsenal and also in the corporations located in Cummings Research Park.

The Huntsville metropolitan area produces a tremendous amount of intellectual property, and the city ranks 21<sup>ST</sup> in the South for patents that have been granted. It is that vision that is driving UAH's venture into a technology-based incubator on campus.

Several important steps have been taken during the past year to create the incubator. Funding from local, state, and federal sources was important in helping advance the project; however, it was local business executive Dorothy Davidson, along with funding from the UAH Foundation, who helped push the project into critical mass with a \$5 million gift. As a result of her generosity, and that of the UAH Foundation, the university named the facility the

D.S. Davidson Invention to Innovation Center (I<sup>2</sup>C).

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.

The success that Davidson Technologies, Inc. has enjoyed since then is both



► UAH's D.S. Davidson Invention to Innovation Center (I²C) is set to open in 2019

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.

"I've started businesses myself and I know how hard it is when you don't have the support that is needed," Davidson says. "Most people fail because, while they have the technological expertise, they don't have the necessary business skills."

Access to labs, networking opportunities, office space, student projects, and other essential business resources will help fully develop and launch ideas to entrepreneurial fruition. The incubator will use resources at UAH to bring technologies into the mar-

ketplace through the identification and funding of entrepreneurs both at the university and within a 15-county region. It will also provide a range of services to convert ideas, research, and prototypes into viable commercial products. The resulting startups will reside there for about three to five years before launching on their own.

Another note of significant progress is the hiring of an experienced individual to lead the initiative. Rigved Joshi has joined UAH as the I²C's new director. He has career experience in venture capital, private equity, startup incubation, and intellectual property monetization, and he recently managed new ventures, strategy, and innovation at Vanderbilt University.

"The D.S. Davidson I²C is all about

delivering a positive impact on accelerating technology development and new venture creation for students, founders, investors, mentors, and other related parties," says Joshi. "The I²C presents a dynamic opportunity to serve as a platform to launch and develop high-tech startups into sustainable, scalable, and investable businesses. It's the first of its kind for Huntsville, and to be able to lead this initiative and leverage the intellectual bandwidth that exists within the ecosystem is tremendously exciting."

A groundbreaking ceremony was held in the fall, and projected completion is early 2019. The 45,000-square-foot facility will be located between the College of Business building and Wilson Hall.

# Q&A with I<sup>2</sup>C director Rigved Joshi

University-based innovation and business incubators are seeing quite a bit of success across the nation. How does business and startup incubation differ on a university campus when compared to those not affiliated with an institution of higher learning?

Any incubation initiative needs an anchor to sustain operational stability, deliver programming, provide strategic support and develop entrepreneurial competencies for its incubatees and the larger ecosystem. The odds of success rise dramatically with a university playing that role – both strategically and financially – through creation of physical infrastructure and support systems necessary for new venture creation.

The need for rapid and disruptive innovation has prompted an urgent push by universities to focus on applied research – a large majority actively seeking commercialization pathways through their respective tech-transfer offices. Presence of an innovation-focused incubator on campus performs a dual role – 1) serving as platform to actively pursue spin off opportunities fueled by university intellectual property and led by students, faculty, etc. and 2) acting as catalyst for entrepreneurs and startups to leverage university centric resources as a result of participating in the incubation program. Thus university anchors tied to an incubation initiative lead to opportunities that enable public – private partnerships, deal flow, educational and research collaborations, mentorship, talent sourcing and funding access, all of which contribute toward the creation of a robust entrepreneurial ecosystem.

What are the factors that will play a role in the success of the I<sup>2</sup>C?

I<sup>2</sup>C's mission supports regional innovation, and our success depends on the following:

- ▶ Implementing a robust selection process to support and nurture startups that will help us attract quality deal flow, assess resource allocation and identify early wins within our portfolio.
- ▶ Delivering support services and resources for entrepreneurs and startups, including space, mentoring, programming, education, access to capital etc., which will help accelerate new venture creation.
- ▶ Establishing collaborations and connectivity locally, regionally, nationally, and globally. This includes a concentrated effort on building strategic and symbiotic relationships with entrepreneurship focused communities, venture accelerators, public-private organizations, investors, mentors, service providers, and strategic partners who will help our companies flourish.

How does the greater Huntsville area compare in the existence of some of those factors?

The sheer strength of Huntsville's research community and infrastructure makes it a unique environment to foster, promote and accelerate commercialization, entrepreneurship and new venture creation. Our region is growing and strategically poised for the next phase of innovation fueled by an ecosystem with deep roots in research and development, a STEM-centric talent pool, and leadership with passion and perseverance for expansion and economic development.

What advantages are there in having a business and technology incubator on the UAH campus?

The establishment of the I<sup>2</sup>C as a "regional" innovation initiative on campus is a win-win for the UAH community and the 15-county entrepreneurial region that it supports. The strategic advantages for aspiring entrepreneurs and start-ups to leverage UAH resources through the I<sup>2</sup>C opens avenues to explore synergies and collaborations spanning several key areas including opportunities to partner with faculty and students on spin offs, collaborative/sponsored research, grant funding, talent acquisition through internships and consulting projects, commercialization and IP support and use of the university's physical resources including special purpose facilities, labs, equipment and related capabilities that can accelerate innovation and technology development.

Your biography and resume show a tremendous amount of depth and experience in technology commercialization. Which of your strengths will be of most value at UAH?

In my career I have put a conscious effort on developing my personal and professional network. This has opened doors, which have led to successes at all levels. A huge part of entrepreneurship focuses on leveraging relationships – whether its raising money, finding talent or closing customers. My goal is to foster, develop, and nurture collaborations and partnerships that are strategic to the success of I<sup>2</sup>C and its startups. This includes people, organizations and communities, which are aligned with our mission.

Ultimately, how will you define success of the I<sup>2</sup>C?

The success of I<sup>2</sup>C will be defined by factors including the ability to attract quality companies, mentors, investors and talent, generating early and consistent wins, building ultimate connectivity for our ecosystem and recognition as a pivotal contributor for tech based innovation and job creation – the ultimate go-to resource for entrepreneurship in our region.

# BRINGING THE POWER OF COMPUTATIONAL BIOLOGY TO MOLECULAR DISCOVERY

**Dr. Jerome Baudry** is named UAH's Pei-Ling Chan Eminent Scholar, a position endowed by philanthropists Tony and Kathy Chan

As UAH's new Pei-Ling Chan Eminent Scholar in the Department of Biological Sciences, Dr. Jerome Baudry says his goal is to "bring the power of computational biology to molecular discovery." To that end, he is applying this concept to the discovery of new drugs and the formulation of natural products, and to the establishment of a firm fundamental biophysical description of protein:protein and protein:ligand interactions.

"Personalized approaches that are tailored for an individual genome/proteome are of particular interest for the future of translational and personalized medicine and pharmacy, and are actively developed in my research," says Dr. Baudry, adding that his focus will be on developing and applying methods and protocols for computational drug discovery, both on small molecules and biologicals, through academic, national laboratory, and industrial collaborations.

As a faculty member of the Department, he is also involved in both their undergraduate and graduate programs, including its biotechnology science and engineering doctoral program. And he is working closely with the HudsonAlpha Institute for Biotechnology, whose 150-acre campus is home to genomics technology and genomic investigators with experience in large-scale projects such as the Human Genome Project, The Cancer Genome Atlas, and the Encyclopedia of DNA Elements Project (ENCODE).

UAH's biotechnology graduate program, the rich ecosystem

of high-tech companies in Huntsville, and the interaction of fundamental and applied biological sciences with HudsonAlpha's genomics research are perfectly in phase with Dr. Baudry's research and educational goals.

"My research in drug discovery, natural products, and molecular biophysics is at the interface of computational biology, functional and structural genomics, proteomics, structural biology, and computational sciences," he says. "Great emphasis is placed on collaborating with both academic and industrial colleagues, and in serving students through quality research opportunities."

Dr. Baudry received his Ph.D. in molecular biophysics with the highest honors from the University of Paris, UPMC/Sorbonne Universities, France. He subsequently joined the University of Illinois at Urbana-Champaign as a postdoctoral fellow. After his postdoctoral work,

Dr. Baudry joined the pharmaceutical industry as a research scientist, and then returned to the University of Illinois to accept a senior research scientist position.

In 2008, he joined the University of Tennessee, Knoxville, and the UT/Oak Ridge National Lab's Center for Molecular Biophysics as a tenure-track assistant professor, becoming a tenured associate professor in 2014. Dr. Baudry currently serves and has served on advisory boards and program review panels for the National Institutes of Health (NIH) and the National Science Foundation. He is also actively developing his group's research, both NIH funded and otherwise, at UAH.







► Rachel Hamburg and Dr. Péter Veres were two of the first to know of the near-simultaneous detection of gamma rays and gravitational waves from a distant pair of merging neutron stars on Aug. 17.

## ONE FOR THE RECORD BOOKS

### UAH team part of co-detection that confirms binary neutron star mergers as a progenitor of short gamma-ray bursts

UAH members of the Fermi Gamma-Ray Burst Monitor (GBM) team were integral to the first co-detection of gravitational waves and gamma rays. “We were preparing for one of these coincident events for a long time,” says Dr. Péter Veres, a postdoctoral research assistant with UAH’s Center for Space Plasma and Aeronomic Research (CSPAR). “It is easily the most exciting discovery I have ever been a part of.”

The source of the outburst was a pair of neutron stars – crushed leftover cores of exploded supernovas. As the two stars drew closer, whirling around each other hundreds of times a second, they merged and produced a spectacular short-lived eruption called a gamma-ray burst (GRB). This burst was first detected by Fermi’s GBM, which is administered in Huntsville by a team of scientists from NASA Marshall Space Flight Center, UAH, the Universities Space Research Association, and

elsewhere around the world; it was also detected by the anti-coincidence shield of the spectrometer aboard another gamma-ray mission called INTEGRAL.

The gravitational waves produced by the stars were then picked up by the National Science Foundation’s Laser Interferometer Gravitational-Wave Observatory (LIGO) facility in Hanford, Wash., shortly after 8:41 a.m. EDT on Aug. 17. The same signal was later identified in the twin detector in Livingston, LA, while the non-detection by the Virgo facility in Italy improved the location determination.

“Scientists have long thought that short GRBs resulted from merging binaries, like two neutron stars or a neutron star and a black hole, but the evidence hasn’t been clear-cut,” says Dr. Michael Briggs, assistant director of CSPAR. “But this joint detection of gamma rays and gravitational waves confirms binary neutron

star mergers as a progenitor of short gamma-ray bursts.”

Both Dr. Veres and Rachel Hamburg, a master’s student in the Department of Space Science, were among the first to know that something extraordinary was happening. As “burst advocates” for the GBM team, they received the alert from the spacecraft as soon as the monitor detected the GRB on Aug. 17. “Not everyone was privy to that information,” says Hamburg, “so it was all very exciting.”

Naturally, being such an integral part of a groundbreaking discovery has only further flamed their passion for the field of gamma-ray astronomy. “Before coming to UAH, I didn’t know anything about gamma-ray bursts, gravitational waves, or multi-messenger astrophysics,” says Hamburg. “Now I’m participating in the forefront of observational astronomy, and I’d like to continue chasing GRBs and gravitational waves.”



## CAMPUS EXPANSION EXPECTED TO CREATE 'COLLEGE-TOWN NEIGHBORHOOD' FOR UAH

Tradition rules at the state's flagship universities, and a part of those practices includes a social gathering spot where students, alumni, and supporters can gather to celebrate the successes of their institutions. The University of Alabama faithful have "the strip." Auburn fans congregate around Toomer's Corner.

UAH has taken a step toward creating its own college-town environment with the purchase of 58 acres on Sparkman Drive directly across from the Beville Conference Center & Hotel.

The exhausted commercial development is part of a 1970s office complex known as Executive Plaza. Several developers expressed interest in the property, but none were able to strike a deal with the landowner, Country Life Insurance Co. of Bloomington, IL. UAH

purchased the property during 2017.

President Robert Altenkirch said the property is likely the only sizeable tract of land contiguous to the campus that would be available for acquisition for many years to come, and this purchase provides numerous opportunities for UAH's future development.

"Our purchase of Executive Plaza will allow for future campus expansion and possibly an evolution of a 'college-town neighborhood'," Dr. Altenkirch said. "It can create a pedestrian-friendly space of mixed-use residential and retail amenities for students, faculty, and staff that are common to other college campuses but that are currently missing from UAH."

The university's purchase of this property also aligns with the university's campus master plan that was

approved by the Board of Trustees of The University of Alabama in 2016. That master plan provides a roadmap for "building a campus that enhances the student experience by creating a strong sense of place, and continuing successful efforts to transform the campus into a pedestrian-friendly environment, and at the same time, engage the surrounding Huntsville community."

Two of the university-wide planning goals identified in the plan to achieve that vision are as follows: (1) continue to pursue opportunities for strategic land acquisitions, and (2) explore collaborative efforts to develop areas such as the Holmes Avenue corridor toward the east, and the research and commercial areas to the west of Sparkman Drive.

A partnership comprising nine universities in Alabama, including UAH, was awarded a five-year, \$20 million grant by the National Science Foundation's (NSF) Established Program to Stimulate Competitive Research (EPSCoR). The grant will fund the development of new predictive plasma-surface interaction technologies for the nation's aerospace, manufacturing, energy, environment, and agricultural sectors.

Dr. Gary Zank, director of UAH's Center for Space Plasma and Aeronomic Research and chair of the university's Department of Space Science, serves as the project's principal investigator (PI) and was instrumental in shepherding the proposal through the process. "Through Dr. Zank's inspired leadership and tireless hard work, the proposal was successfully selected for funding by NSF EPSCoR," says Dr. Christopher Lawson, Alabama EPSCoR executive director. "Now it promises to develop new research capabilities in the state in plasma science; educate students in the plasma-related science, technology, engineering, and math fields; and create important high-technology jobs for Alabama."

But while Dr. Zank may be serving as PI on the project, which is entitled "Connecting the Plasma Universe to Plasma Technology in Alabama: The Science and Technology of Low-Temperature Plasma," he is quick to share credit for its success. "Ray Vaughn and his team in UAH's Office of the Vice President for Research and Economic Development were outstanding in providing all of the help and resources that we needed to pull the proposal together, and Alabama EPSCoR – led

## CONNECTING THE PLASMA UNIVERSE TO PLASMA TECHNOLOGY IN ALABAMA

### Dr. Gary Zank serves as PI on five-year, \$20 million NSF EPSCoR grant

by Dr. Lawson – went out of their way to provide us with both assistance and expertise," says Dr. Zank. "I view it as a real statewide, team effort, as it's not something that could have been done by one person at all. All the co-principal investigators and the institutional leads were outstanding."

Along with UAH, the partnership includes The University of Alabama (lead: Dr. R. Branam), the University of Alabama at Birmingham (lead: Dr. Y. Vohra), Auburn University (lead: Dr. E. Thomas), Tuskegee University (lead: Dr. V. Rangari), the University of South Alabama (lead: Dr. E. Spencer), Alabama A&M University (leads: Dr. R. Mentreddy and Dr. E. Cebert), Alabama State University (lead: Dr. K. Vig), and Oakwood University (lead: Dr. A. Volkov), with additional assistance from CFD Research Corporation (lead: Dr. V. Kolobov), a computational fluid dynamics software company located in Cummings Research Park. These members bring "a range of expertise in space science, laboratory plasma physics, materials, biosciences, and manufacturing



to this endeavor," says Dr. Zank.

For Dr. Ray Vaughn, Vice President for Research and Economic Development at UAH, the prestigious award not only reflects the "deep technical abilities" of the university, but it also offers the institution an extraordinary leadership opportunity in a cutting-edge field of research. "Dr. Zank was able to put together a winning team by leveraging the strongest researchers across the state in the area of plasma research," he says. "We are very much looking forward to executing this project."

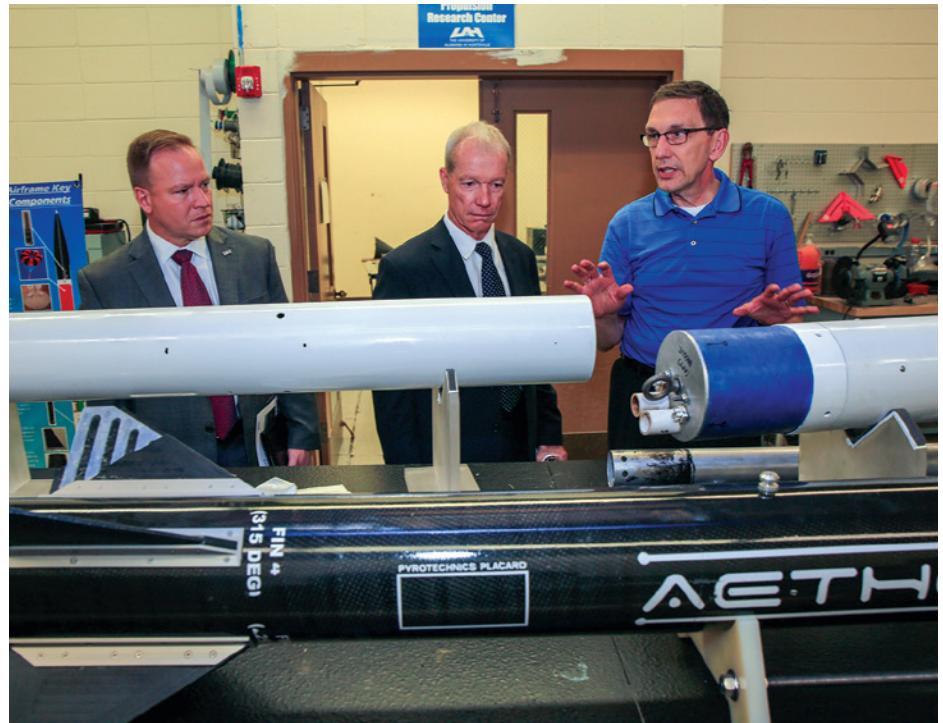
## FACULTY

**Dr. John Kvach**, an associate professor of history, was named to the board of the Alabama Humanities Foundation, the statewide organization that represents the humanities; he was also appointed to the Huntsville Historical Commission by Huntsville Mayor Tommy Battle.

**Dr. Nikolai Pogorelov**, a professor in the Department of Space Science and the Center for Space Plasma and Aeronomic Research, was elected a 2017 fellow of the American Physical Society (APS) by the APS Council of Representatives upon the recommendation of the Topical Group on Plasma Astrophysics. He was also honored with the University Distinguished Research Award at UAH's annual Faculty Awards Ceremony and Reception.

**Dr. Lillian Joyce**, chair of the Department of Art, Art History & Design, spent three weeks in August as a visiting scholar at the American Academy in Rome, Italy. She also presented her paper, "Allusions to Imperial Cult in Hadrian's Temple of Venus and Roma," at the Archaeological Institute of America's 118th annual meeting in Toronto, Canada.

**Dr. L. Dale Thomas**, professor and eminent scholar of systems engineering and the deputy director of UAH's Propulsion Research Center, was named director of the Alabama Space Grant Consortium; he was also named director of Alabama's NASA Established Program to Stimulate Competitive Research program.



► **Dr. Robert A. Frederick Jr.**, right, director of the Propulsion Research Center, was honored with the "Shaping the Future of Aerospace" award at the 2017 AIAA Propulsion and Energy Forum and Exposition in Atlanta, GA. The award recognizes his work organizing the propulsion education technical sessions at the AIAA Joint Propulsion Conference for the past 20 years.

**Katie Baldwin**, an assistant professor of art, participated in a Mokuhanga Innovation Lab artist-in-residence program to learn about traditional Japanese water-based woodblock printmaking, paper mounting, and bookbinding in Kawaguchiko, Japan. While there, she traveled to Kyoto to teach a book-arts workshop to students from the Rhode Island School of Design.

**Dr. Jatinder Gupta**, eminent scholar and professor of information systems, assumed the presidency of the Decision Sciences Institute, on April 1, 2017, for a one-year term. He was also invited to present a seminar on "Information Systems and Technology Strategy: Preparing for the Digital Strategy" at the Seoul National University in Seoul, South Korea.

**Dr. Wafa Orman**, an associate professor of economics, presented her co-authored paper, "The Long-Term Effect of Early Life Exposure to Cow Slaughter Bans on Anemia in Women of Prime Reproductive Age," at the 2017 Association for the Study of Religion, Economics, and Culture Conference in Boston, MA.

**Dr. Gary Zank**, chair of the Department of Space Science and director of the Center for Space Plasma and Aeronomic Research, was named the 2017 recipient of the International Space Science Institute's Johannes Geiss Fellowship. Awarded annually, the fellowship provides one international scientist of stature with funding for a limited-duration visit to the Institute in Bern, Switzerland.



► **Dr. Eletra Gilchrist-Petty**, an associate professor in the Department of Communication Arts, published "Deviant Communication in Teacher-Student Interactions: Emerging Research and Opportunities," which examines deviant behaviors that can disrupt the learning process when instructional communication is not carried out properly.

**Dr. Angela Balla** and **Dr. Chad Thomas**, both assistant professors of English, organized "Geologies of Sex: Gender, Sexuality, and Historicity in Cross-Theoretical Contexts," a graduate conference held on the UAH campus.

**Dr. Joseph Ng**, a professor in the Department of Biological Sciences, presented his research on protein crystal growth for neutron diffraction at the Oak Ridge National Laboratory's 8th Workshop on Neutron Scattering Applications in Structural Biology.

**David Kyle**, a lecturer in the Department of Kinesiology and the director of UAH's Ability Sport Network, spoke about his personal experience with sports and disability at TEDxHuntsville's 2017 event.



► **Vinny Argentina**, an assistant professor of art, gave a public lecture at the Huntsville Museum of Art called "Not Just Moving, but Living: An Exploration of Animation Principles," which used theory and movie clips to explore how animators create high-quality animations. He was also one of the primary organizers of this year's ChargerCon, UAH's annual free gaming and technology expo featuring video games, tabletop games, cosplay, and comics.



- ▶ Alabama Governor Kay Ivey led a groundbreaking ceremony of the **D.S. Davidson Invention to Innovation Center (I<sup>2</sup>C)** on Oct. 17. She was joined by CEO of Davidson Technologies Dorothy Davidson; Ron Gray, President Pro tempore of the University of Alabama Board of Trustees; UAH President Robert Altenkirch, as well as other local, state, and federal officials.

**Dr. Ellise Adams**, associate professor of nursing, received an Honors Capstone Research Grant for \$3,200, and **Dr. Kay Hargett**, a nursing lecturer, received a tobacco prevention grant from the U.S. Department of Health and Human Services for \$37,000, and an Appalachian Regional Commission grant for \$42,000.

**Dr. Eric Mendenhall**, an assistant professor of biological sciences, and Dr. Richard Myers, president of the HudsonAlpha Institute for Biotechnology, are serving as co-principal investigators on a four-year, \$31.5 million National Institutes of Health Encyclopedia of DNA Elements project to help identify all functional elements in the human genome.

**Dr. Shannon Mathis** and **Dr. Ryan Conners**, assistant professors in the Department of Kinesiology; **Dr. Gordon MacGregor**, an assistant professor of biological sciences; and **Dr. Louise O’Keefe**, an assistant professor of nursing, received a 2017 UAH Research Infrastructure Fund award from the Office of the Vice President for Research and Economic Development in the amount of \$95,000, which will be used to purchase the Hologic Horizon DXA required for their project, “Dual-Energy X-Ray Absorptiometry (DXA): Investigation of Bone Health, Body Composition, and Cardiovascular Health.”

**Dr. Susan Alexander**, associate professor of nursing, and **Dr. Jeffrey Neuschatz**, professor of psychology,

were among seven faculty members to receive \$280,326 in internal funding through the Office of the Vice President for Research and Economic Development’s Individual Investigator Distinguished Research program.

**Dr. Phillip Bitzer**, an associate professor in the Department of Atmospheric Science, received \$103,375 in funding for his proposal, “Bayesian Merging of GLM data with Ground-Based Network” from the GOES-R Risk Reduction Science Program. He also received a five-year, \$705,332 National Science Foundation Faculty Early Career Development Program award for his project entitled “CAREER: Wideband, Integrated Instrumentation to Investigate the Electrical Properties of Lightning.”

**Dr. Marsha Howell Adams**, dean of the College of Nursing, received a \$40,000 grant from the Caring Foundation of Blue Cross Blue Shield in support of the Collaborative Care Clinic. She was also inducted into the 2017 Alabama Nursing Hall of Fame.

**The College of Education** was awarded a grant for \$75,000 to provide information, educational resources, and training opportunities about autism spectrum disorders to local individuals, families, and professionals as part of UAH's membership in the Alabama Regional Autism Network.

**Dr. Bill Kaukler**, an associate research professor with UAH's Rotorcraft Systems Engineering and Simulation Center (RSESC), was awarded a patent in July 2017 entitled "Methods and Systems for Making Carbon Fibers for High Temperature Applications." The RSESC also received \$750,000 from the Federal Aviation Administration to continue funding its UAS Ground Collision Severity study.

**Dr. Babak Shotorban**, an associate professor in the Department of Mechanical and Aerospace Engineering, received a \$563,276 grant from the U.S. Department of Commerce's National Institute of Standards and Technology to investigate the spread of wildland-urban interface fires caused by firebrands.



► **Dr. Azita Amiri**, assistant professor of nursing, received a \$5,000 grant from the National Center for Healthy Housing, the Trust for America's Health, the Pew Charitable Trusts, and the Robert Wood Johnson Foundation to help raise awareness of lead poisoning in Uniontown, AL.

**Dr. Louise O'Keefe**, an assistant professor of nursing, received the 2017 Golden Pen Award for her article "Obesity, Prediabetes, and Perceived Stress in Municipal Workers," which appeared in *Workplace Health & Safety*; was selected to participate in the National League for Nursing LEAD program; and was named a 2017 fellow of the American Association of Nurse Practitioners for outstanding contributions and demonstrated commitment to advancing the nurse practitioner role.

**Dr. Mikel D. Petty**, an associate professor in the Department of Computer Science, was awarded \$300,000 from the Missile Defense Agency for his project entitled "Post Intercept Debris Predictions for EO/IR Scene Modeling."

**Dr. Eric Fong** and **Dr. Allen "Al" Wilhite**, faculty members of the College of Business, co-authored a paper entitled "Authorship and Citation Manipulation in Academic Research," which appeared in *PLOS ONE*, a peer-reviewed open-access scientific journal published by the Public Library of Science.

**Dr. Dylan Baun**, assistant professor of history; **Dr. Joshua Burel**, assistant professor of music; and, assistant professor of philosophy, were among 11 new tenure-track faculty members to receive \$107,059 in 2017-2018 New Faculty Research awards from UAH's Office of the Vice President for Research and Economic Development.

**Christian Schenck, Jordan Flowers, Polychroniades Panteleimon, Irene Cervantes, Jonathan Slack, Erika Davis, Nicholas Benson, and Logan Johnson** were awarded full cybersecurity scholarships by UAH, which is in the fourth year of a five-year, \$4.2 million grant from the CyberCorps® Scholarships for Service program, administered by the National Science Foundation. The scholarship includes full tuition and fees, an annual stipend of \$22,500 for undergraduates and \$34,000 for graduate students, up to \$2,000 per year in reimbursement for books, up to \$4,000 per year in reimbursement for professional development and travel expenses, and up to \$3,000 per year in reimbursement for health insurance.

**Olivia Watson** and **Nicholas Blazina** each received a Benjamin A. Gilman International Scholarship from the U.S. Department of State's Bureau of Educational and Cultural Affairs. Blazina, a double major in management and foreign language and international trade, received a \$2,500 scholarship to study Russian in Russia, while Watson, a chemical engineering major and German minor, received a \$3,000 scholarship to study German in Germany.

**Ethan Hopping**, a master's aerospace systems engineering student who now works at Blue Origin, and **Dr. Gabe Xu**, assistant professor in the Department of Mechanical and Aerospace Engineering, partnered to design and test a Hall-effect thruster with a 3-D printed channel and propellant distributor.

**Hemang Jani**, a Ph.D. candidate in the optical science and engineering program, attended the prestigious Siegman International School on Lasers, whose 2017 program was hosted by the Centro de Investigaciones en Optica in Leon, Guanajuato, Mexico.

**Delia Martinez**, a master's student in the College of Education and an ESL teacher at McDonnell Elementary School, received a \$1,000 grant from the Alabama Power New Teacher Grant Program, which recognizes outstanding first-year teachers.

**Bofeng Tang**, a Ph.D. candidate in the Department of Space Science, received a \$30,000 2017-2018 NASA Earth and Space Science Fellowship to fund his research into the transport of electrons and electron heat flux in the solar wind.

**Rachel Bedingfield**, a master's student in the Department of Biological Sciences, and **Dr. Bruce Stallsmith**, an associate professor of biology, co-authored a paper entitled "Reproductive Development in the Black Darter (*Etheostoma duryi*)," which received the 2017 Carmichael Award and was recognized at the 94th annual meeting of the Alabama Academy of Science in Mobile, AL.

**Saroj Kumar**, a master's candidate in aerospace engineering, was one of five candidates to receive a NASA Outer Planet Assessment Group (OPAG) Early Career Travel Grant to attend the OPAG summer meeting in San Diego, CA, where he presented the results of his master's thesis on fusion propulsion.

**Aislynn "Roxie" Brookshire**, a sociology major and a Women's and Gender Studies minor, received a \$20,000 "Live Your Dream" scholarship from Soroptimist International, a global volunteer organization that seeks to improve the lives of women and girls through programs leading to social and economic empowerment.

**Jessica Eason**, a cybersecurity master's student in the College of Business, and **Victoria Van**, a computer engineering major, were both awarded a U.S. Department of Defense (DOD) Information Assurance Scholarship, which includes full tuition and fees, an annual cost of living stipend of \$22,500 for undergraduates and \$30,000 for graduate students, a book allowance, a laptop computer, travel expenses to a conference, and a DOD summer internship.



► **The Department of Music** acquired a state-of-the-art Yamaha DCFX E3 Pro Concert Grand Piano, the first of its kind in the state and region. Music faculty member Melody Ng is pictured with the piano.





- ▶ **UAH's Early Learning Center (ELC)** received a \$25,000 gift from the Daniel Foundation for a new sensory room, while Boeing donated an additional \$21,000 toward the sensory room and sensory kits for each classroom at the ELC. Target also donated \$2,500 toward a sensory garden. Both the indoor and outdoor sensory spaces are expected to be complete during 2018.

**Dr. Yeqing Bao**, professor of marketing, led a Maymester study-abroad class to China that comprised both UAH students and students from Hohai University, UAH's partner institute in China. **Dr. Sophia Marinova**, associate professor of management, and **Charles Hickman**, clinical associate professor of accounting, led a Maymester study-abroad class to Romania that comprised both UAH students and students from the Romanian-American University.

Members of the **College of Nursing's** Alabama Association of Nursing Students attended the 2017 Alabama State Student Nurses Association convention in Hoover, AL, where chapter president and nursing major **Kristina Faw** won the award for Outstanding

Chapter President. Fellow nursing majors **Linda Hanson** and **Frederick Richardson** were also recognized with the Outstanding Executive Member: Chapter Level award and the Outstanding Executive Member: State Level award, respectively.

More than 70 students in the **College of Business** volunteered at free tax-preparation sites in Huntsville and Decatur as part of the 2017 SaveFirst Initiative. The students provided 1,246 hours of assistance to low-income Huntsville residents and international students at UAH.

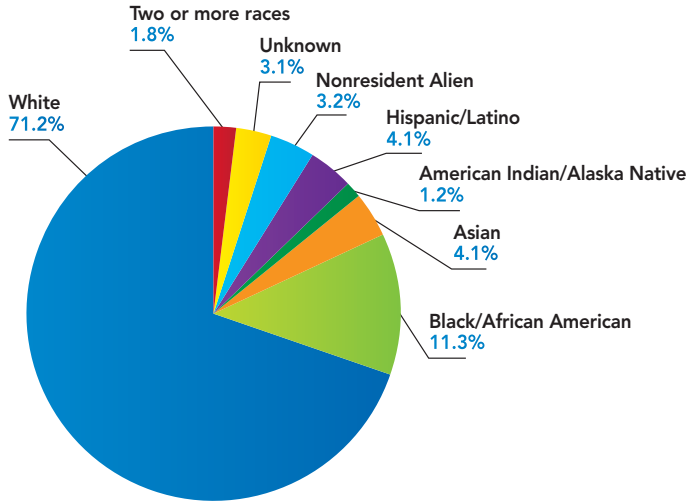
Members of UAH's student-run **Capital Management Group**, which manages a \$530,000 portfolio for the Tennessee Valley Authority (TVA) and the group's

own \$35,000 Charger Fund, attended and presented at the 2017 TVA Investment Challenge Conference in Nashville, TN.

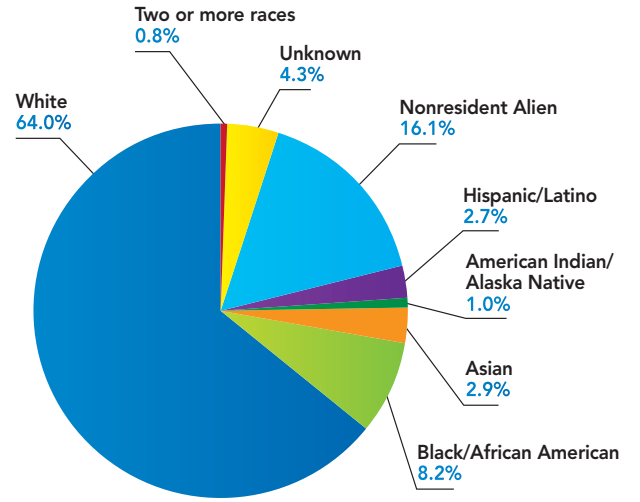
The **Department of History** established a new graduate certificate program in comparative cultures and conflicts; the **Departments of Philosophy and Political Science** established a new pre-law certificate program; and the **College of Arts, Humanities, and Social Sciences** established a new interdisciplinary Latin American Studies minor.

The **Department of Atmospheric Science** was named a Center of Academic Excellence in geospatial sciences by the National Geospatial-Intelligence Agency and the U.S. Geological Survey.

## Undergraduate Student Composition FY17 (Fall 2016)

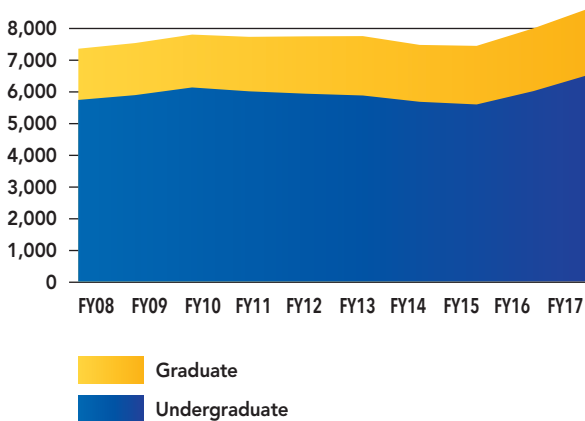


## Graduate Student Composition FY17 (Fall 2016)



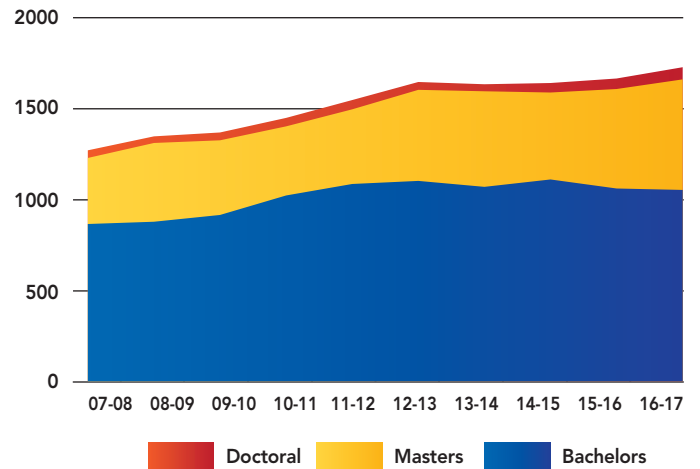
## Enrollment

FY08 (Fall 2007) to FY17 (Fall 2016)



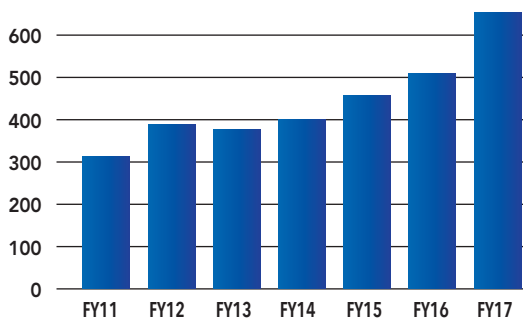
## Undergraduate & Graduate Degrees

AY07-08 to AY16-17



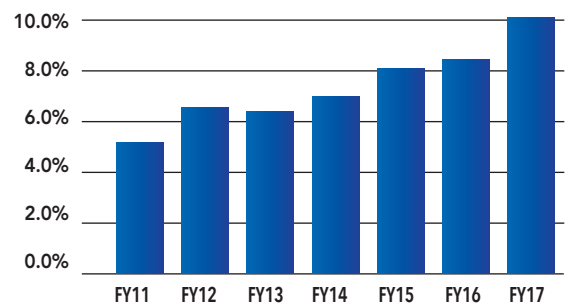
## Undergraduate Honors Enrollment

FY11 (Fall 2010) to FY17 (Fall 2016)

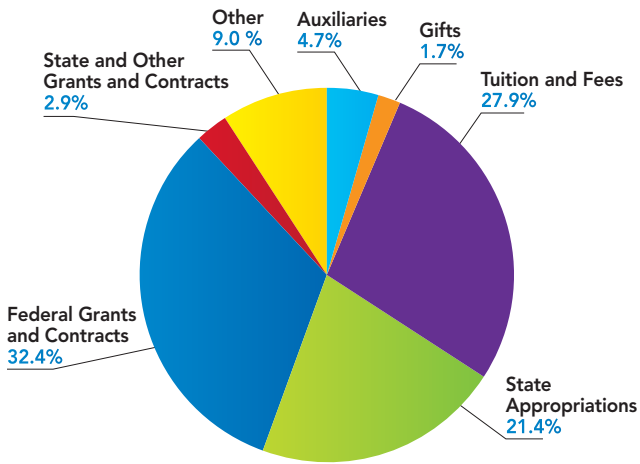


## Honors as % of Undergraduate Enrollment

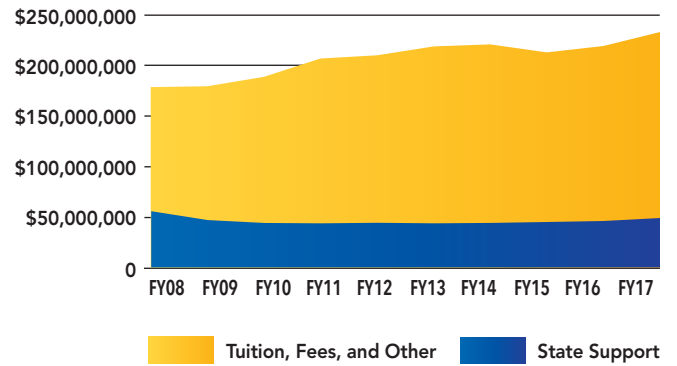
FY11 (Fall 2010) to FY17 (Fall 2016)



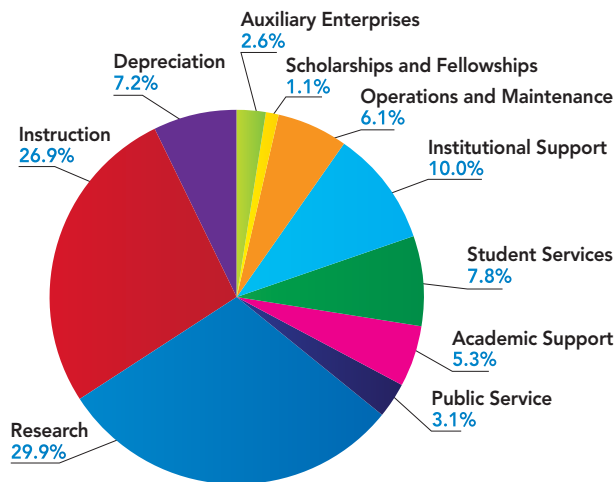
**FY17 Revenue \$223,569,910**



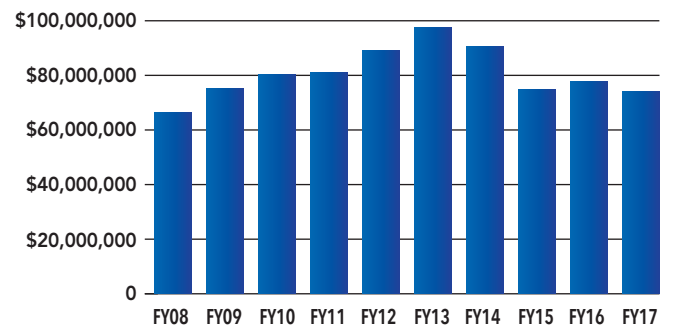
**Operating Revenue  
FY08 to FY17**



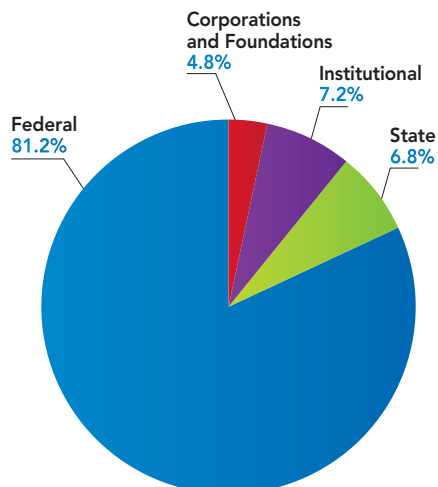
**FY17 Expenditures \$223,569,910**



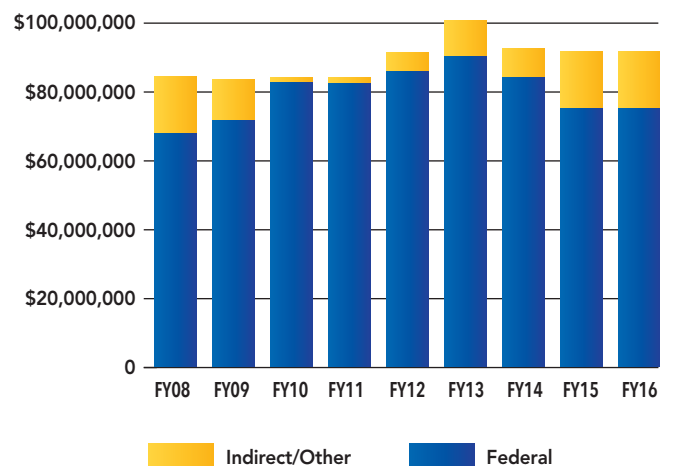
**Grant and Contract Expenditures  
(Research, Instruction, and Public Service)**



**FY17 Direct Research Expenditures  
by Source \$66,897,171**



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



\*FY17 not yet reported to NSF

## ADVANCEMENT

*"We are committed to investing in students, helping to provide them with the best opportunity to succeed. We want to support programs that provide students with exciting opportunities in STEM to help cultivate the next generation of engineers, researchers, and science leaders."*

- David Fernandes  
Toyota Alabama President



THE UNIVERSITY OF  
ALABAMA IN HUNTSVILLE



## EXPANDING HORIZONS

### Tech Trek Alabama receives \$150,000 grant from the Toyota USA Foundation

Thanks to a \$150,000 grant from the Toyota USA Foundation, more Alabama girls now have an opportunity to explore education in the science, technology, engineering, and math (STEM) fields. The generous donation will support and help grow Tech Trek Alabama, a weeklong residential camp for rising eighth-grade girls that provides intensive hands-on experiments and STEM-based activities including building robots, developing apps, and studying cybersecurity.

An American Association of University Women (AAUW) program, Tech Trek was launched in 1998 and has since expanded to 20 sites, including Alabama in 2014. Last year, 65 students (representing 39 schools) participated in Tech Trek Alabama, which is offered in partnership by UAH and the Huntsville branch of the AAUW at a cost of only \$50 per person. This provides an opportunity for students who might have difficulty paying more.

"Interest in Tech Trek has grown in the three years we have been holding the camp," said Dr. Rhonda Gaede, camp director and associate professor of electrical and computer engineering at UAH. "Increasing the number of counties served and selecting a group of

campers who reflect the demographics of the state are priorities in our fourth year."

STEM education is a focus area for Toyota's community outreach efforts. "We are committed to investing in students, helping to provide them with the best opportunity to succeed," said Toyota Alabama president David Fernandes. "We want to support programs that provide students with exciting opportunities in STEM to help cultivate the next generation of engineers, researchers, and science leaders."

UAH president Dr. Robert Altenkirch echoed Fernandes' appreciation for the program. "Tech Trek Alabama has been instrumental in enabling girls across the state to envision themselves in professional careers they may otherwise have never thought of or thought unattainable – from scientists and software developers to engineers and cybersecurity experts," he said. "With its generous donation, Toyota is helping to expand the horizons of even more deserving young STEM enthusiasts as they congregate on the UAH campus each summer."

This year's Tech Trek Alabama was held June 18-24 on the UAH campus.



## MEN'S BASKETBALL

- ▶ UAH Men's Basketball won its second GSC tournament title in the past three seasons, en route to hosting the NCAA South Regional for a second straight year, and the Chargers reached the regional final for the fifth time in seven years.
- ▶ Seab Webster and Brandon Roberts both earned all-region accolades following their terrific senior seasons, and Webster played in the Division II All-Star Game.

## WOMEN'S BASKETBALL

- ▶ The team led the Gulf South Conference with 11 Chargers earning GSC Academic Honor Roll status.

## HOCKEY

- ▶ UAH experienced its strongest campaign as members of the WCHA in 2016-17, as the squad went 9-22-3 overall and 9-16-3 in league play, which included three road series sweeps. Sophomore defenseman Kurt Gosselin was also named the program's first All-WCHA honoree.

## BASEBALL

- ▶ The Chargers reached the GSC tournament for the eighth straight season after posting an overall record of 24-26 and a 15-18 mark in league play during the regular season. The Chargers were led by a trio of All-South Region honorees in 2017 in shortstop Tanner Burns, pitcher Will Myers, and catcher AJ Walden.

## SOFTBALL

- ▶ UAH won its sixth GSC regular season championship and reached the NCAA tournament for the 15th straight year, and the squad reached the 40-win plateau for the 20th consecutive season.
- ▶ The Chargers featured the GSC Player of the Year Kaitlyn Bannister, GSC Pitcher of the Year Tyler Harrison, and GSC Coach of the Year Les Stuedeman, while Bannister was one of three finalists for the National Player of the Year award.

## WOMEN'S LACROSSE

- ▶ The Chargers again finished as the NCAA leader in goals per game with an average of 17.32 in 2017, while boasting an overall record of 14-5 and 7-1 in GSC play while reaching the GSC invitational final for the second year in a row. The program also notched five All-GSC honorees headlined by GSC Player of the Year Nicole Federovitch.

## MEN'S LACROSSE

- ▶ UAH doubled its inaugural season win total by recording six wins in its second season, with three of those wins at UAH's Charger Park.
- ▶ During the offseason, the Chargers received big news as the team found a conference home and will compete in the Great Lakes Valley Conference beginning with the 2018 season.

## MEN'S TRACK AND FIELD

- ▶ The 2017 campaign was highlighted by a GSC Championship in the program's first season in the league, garnering four individual champions. UAH's squad featured GSC Coach of the Year David Cain, GSC Field Athlete of the Year Devin Jones, and GSC Freshman of the Year Zach Hancock.
- ▶ At Nationals, UAH had one Indoor All-American in Kwantreyl McConico and one Outdoor All-American in Jacob Rogers.

## WOMEN'S TRACK AND FIELD

- ▶ UAH finished the season in third place in its first time competing at the GSC Championships, garnering three individual champions. During the season, UAH also reset the program record in seven events between the indoor and outdoor campaign.

## WOMEN'S TENNIS

- ▶ UAH won five GSC matches and earned a trip to the conference tournament as the No. 6 seed. Six Chargers landed on the GSC Academic Honor Roll, and Cristina Cabanas earned a spot on the GSC All-Academic Team.

## MEN'S TENNIS

- ▶ The Chargers reached the GSC tournament for the ninth consecutive season, and the team was also strong in the classroom, with six of its players on the GSC Academic Honor Roll.

## MEN'S CROSS COUNTRY

- ▶ The Chargers earned a berth to the NCAA Division II Championships for the first time since 2012 after finishing second as a team at the NCAA South Regional this past season.
- ▶ UAH boasted four All-South Region performers on the squad as Jay Day, Brydon Groves-Scott, Benji Knox, and Hunter Nails each earned the honor.

## WOMEN'S CROSS COUNTRY

- ▶ UAH had three runners in the top 25 at the NCAA South Regional, with Allison Ammons, Marlee Mason, and Angel Sillivant each earning All-South Region honors while helping the squad place fifth as a team.

## VOLLEYBALL

- ▶ The Chargers notched the program's first 20-win season since 2005 with a 23-12 overall record and an 11-5 mark in GSC play, earning them the fourth seed in the GSC tournament. Both Haley Hop and Anna Claire Johnson earned All-GSC, while Hop went on to earn D2CCA All-South Region honors, and Johnson was voted CoSIDA Academic All-District.

## MEN'S SOCCER

- ▶ UAH posted nine wins including a 7-2-2 mark in conference play, earning the Chargers a second-place regular season finish, and the squad reached the championship game of the GSC tournament for just the fourth time in program history.
- ▶ The team featured three All-GSC selections including Corentin Diverres and Jordan Wright, who both were also named All-South Region performers.

## WOMEN'S SOCCER

- ▶ The Chargers earned six wins for the year while competing in the always-tough GSC. Riley Ridgeway led the team, scoring six goals and adding four assists to total 16 points in her senior season.



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# Peace ON EARTH

UAH's fifth annual "Peace on Earth" was presented by the College of Arts, Humanities, and Social Sciences on Friday, Dec. 1, in the Von Braun Center Concert Hall. Sponsored by Hewlett Packard Enterprise, the family-friendly holiday celebration was headlined by Ruben Studdard, winner of the second season of "American Idol," and featured performances by faculty and students of the UAH Department of Music, the Huntsville Symphony Orchestra, the Huntsville Community Chorus, and the U.S. Army Materiel Command Band.





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## PRESIDENT'S COUNCIL

Individuals and families who give \$1,000 or more annually to The University of Alabama in Huntsville not only become members of the President's Council, they also unite in pursuit of a common cause: to make UAH a comprehensive, technological research-intensive university known for inspiring and instilling the spirit of discovery, the ability to solve problems, and a passion for improving the human condition – a university of choice where technology and human understanding converge.

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## PRESIDENT'S CORPORATE & FOUNDATION PARTNERS

Businesses and foundations that give \$2,500 or more annually to The University of Alabama in Huntsville become members of the President's Corporate & Foundation Partners program. Membership provides corporations with valuable access to expertise, student employment opportunities, research collaborations, and workforce enhancement.

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