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UF | Research
UNIVERSITY of FLORIDA

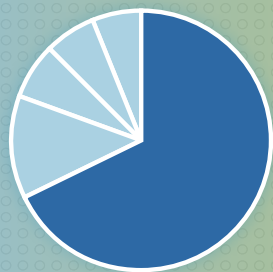
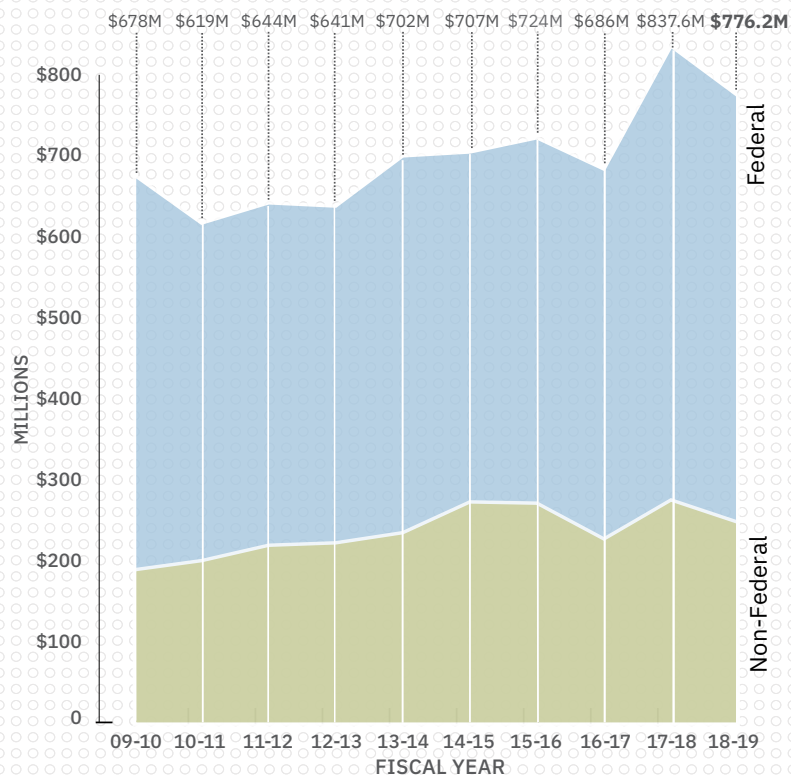
2019

UF|Research

2019

Total Awards
\$776.2M

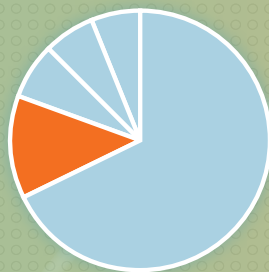
2010-2019 Sponsored Awards



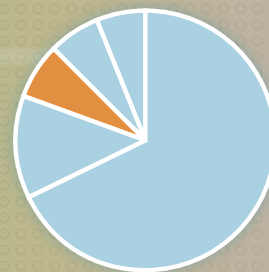
\$526.8M
FEDERAL

HHS	\$246.2M
USDA	\$78.8M
NSF	\$62.0M
DOD	\$38.3M
Education	\$24.4M
VA	\$15.9M
Energy	\$15.6M
Commerce	\$10.8M
DOT	\$10.7M
USAID	\$7.4M
NASA	\$7.1M
Other	\$3.1M
Justice	\$2.5M
EPA	\$2.4M
Interior	\$1.6M

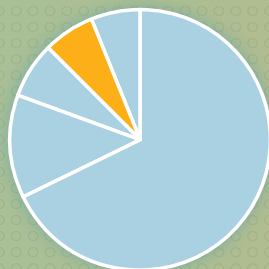
**amounts rounded*



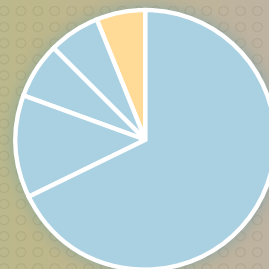
\$99.1M
FOUNDATIONS



\$54.5M
INDUSTRY



\$49.3M
STATE/LOCAL



\$46.5M
OTHER

2019 Awards by
SPONSOR

R&D Expenditures at Public Institutions

(SOURCE: NATIONAL SCIENCE FOUNDATION, FY 2018)

1	University of Michigan	\$1.60B
2	University of California, San Francisco	\$1.59B
3	University of Washington	\$1.41B
4	University of California, Los Angeles	\$1.32B
5	University of California, San Diego	\$1.27B
6	University of Wisconsin, Madison	\$1.21B
7	University of North Carolina, Chapel Hill	\$1.14B
8	University of Pittsburgh	\$1.01B
9	University of Minnesota	\$954.7M
10	M. D. Anderson Cancer Center	\$929.7M
11	Texas A&M University	\$922.2M
12	Penn State University	\$908.7M
13	Georgia Institute of Technology	\$891.7M
14	Ohio State University	\$875.0M
15	University of Florida	\$865.1M
16	University of California, Berkeley	\$796.5M
17	University of California, Davis	\$788.8M
18	Michigan State University	\$715.3M
19	Rutgers University	\$706.3M
20	University of Arizona	\$687.1M

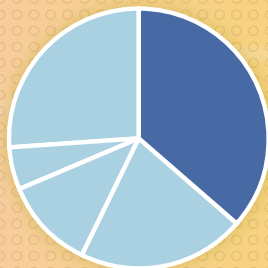
UF INNOVATE

Building Business On Innovation

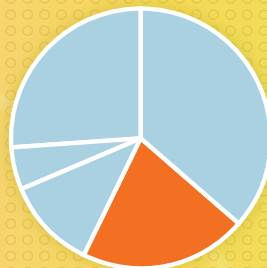
13
STARTUPS
2019

261*
LICENSES/
OPTIONS
2019

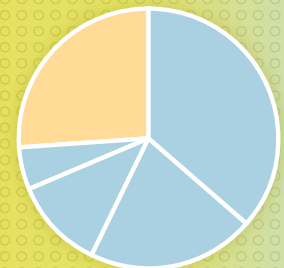
**Includes all UF license and option agreements, including those by Tech Licensing and the UF Institute of Food and Agricultural Sciences (UF/IFAS)*



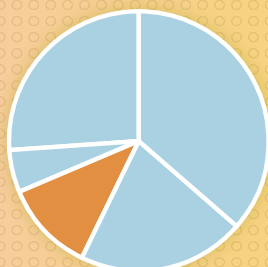
\$283.9M
COLLEGE OF MEDICINE



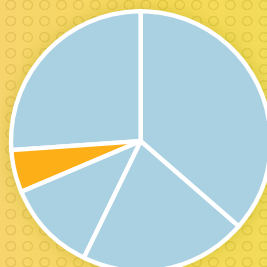
\$161.3M
UF/IFAS



\$201.1M
OTHER



\$89.5M
COLLEGE OF
ENGINEERING



\$40.4M
COLLEGE OF LIBERAL
ARTS & SCIENCES

College of Education	\$33.0M
College of Public Health & Health Professions	\$32.1M
College of Pharmacy	\$23.8M
College of Medicine - Jacksonville	\$23.1M
Centers & Institutes	\$19.2M
College of Veterinary Medicine	\$16.9M
College of Dentistry	\$13.5M
College of Health & Human Performance	\$9.1M
Florida Museum of Natural History	\$6.2M
UF Research	\$6.1M
Other Colleges	\$5.9M
College of Design, Construction & Planning	\$4.1M
Graduate School	\$3.3M
College of Journalism & Communications	\$3.2M
Business Administration	\$1.6M

2019 Awards by
ACADEMIC UNIT



David Norton, Vice President for Research



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Since at least World War II, the United States has relied on institutions like the University of Florida to conduct the bulk of its basic research, through funding from organizations like the National Institutes of Health, the National Science Foundation and the Centers for Disease Control and Prevention, and the various government agencies, including the Department of Agriculture, the Department of Defense, the Department of Energy, the Department of Transportation and the Department of Education.

Over the past 10 years, UF faculty researchers have been awarded nearly \$3 billion in federal research funding to explore solutions in fields as diverse as medicine, agriculture, engineering, the environment and the humanities. This research has resulted in major advances, such as a genetic cure for an inherited form of blindness, confirmation of the existence of gravitational waves in space, new varieties of agricultural products and the emergence of the Internet of Things.

These advances help people everywhere, but they especially help the citizens of Florida, who reap significant benefits from UF's success at bringing federal dollars to the state, where they stimulate the economy and generate thousands of jobs.

UF values its federal partners enormously and works closely with the funding agencies to ensure we are good stewards of their support. We have professionals who help faculty manage the entire process, from writing a funding proposal to managing a grant and complying with regulatory guidelines.

This report highlights a small sample of the thousands of federally funded research projects at the University of Florida.

OneFlorida

UF's Clinical and Translational Science Institute (CTSI), in partnership with Florida State University, is using a \$29 million grant from the **National Institutes of Health** to speed research discoveries that will lead to improved health for Florida residents.

The UF CTSI and the FSU College of Medicine began a collaboration in 2010 that led to creation of the OneFlorida Clinical Research Consortium, which also includes the University of Miami and affiliated health care partners across the state who provide health care to 15 million patients across all of Florida's 67 counties. To date, the consortium has facilitated more than 125 projects studying areas as diverse as obesity, cancer, hepatitis C, hypertension and substance use.

Over the next five years, UF and FSU will expand their collaboration, further developing and aligning expertise across the two universities to address complex health challenges in the communities they serve.

During its first decade, the UF CTSI incubated and grew programs in genomic medicine, metabolomics, network analysis, biomedical informatics, community engagement and health communication research. Over the next five years, UF and FSU will apply and expand these tools to improve health and speed research out to the community—particularly addressing the needs of underserved, minority, rural and elderly populations.



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iDigBio

UF's Florida Museum of Natural History is leading a national effort to digitize as many as 1 billion biological specimens tucked away in museum collections across the country, using a \$10 million grant from the **National Science Foundation**.

Centuries of knowledge are stored in museum collections around the country, from a fern collected, pressed and labeled hundreds of years ago, to an insect collected just last year. Putting this treasure online opens it to research, education and just plain curiosity. Both the specimen and the traditional label information are digitized, sometimes along with other information, such as audio of bird songs. Using the label data alone, a scientist can produce maps showing, for example, the range of an organism or change in its distribution over time.

NSF is funding digitization of museum and university collections to the tune of \$100 million over 10 years as part of its Advancing Digitization of Biodiversity Collections program, with iDigBio coordinating the national effort. Nearly 200 collections, representing all 50 states, are participating so far.

Already, 14 million specimen records and 2 million images are online, accessible from a search portal developed by UF's Advanced Computing and Information Systems Laboratory.

Carinata

With help from University of Florida researchers, pilots may one day fly jets with fuel made from a tiny seed grown in the Southeast. Besides helping the environment and boosting the economy as a source of renewable fuel, the seed can also be used to produce valuable bioproducts and feed for livestock.

UF's Institute of Food and Agricultural Sciences is the lead on a \$15 million **U.S. Department of Agriculture** project to study *Brassica carinata*, an inedible seed whose oil can be turned into jet fuel.

An advantage of the fuel produced from carinata is that it does not have to be blended with petroleum-based fuel. The military and commercial aviation industries are interested in renewables due to national security and their commitment to environmental sustainability.

Carinata grows well in the winter when fields are often fallow after cotton, corn, soybean or peanut harvests, and is economically competitive — giving growers opportunity to make a profit on their farms during winter months.



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Transportation Institute

The UF Transportation Institute brings together more than 100 faculty and dozens of staff and students from across the university to provide solutions to a variety of transportation problems.

The institute — funded by the **U.S. Department of Transportation** — has four strategic initiatives: Autonomous and Connected Vehicles; Big Data Analytics; Safety; and Materials and Infrastructure. The main areas of research expertise under those initiatives are Traffic Operations, Planning and Policy, Human Factors, Sustainability, Economics and Logistics.

One major initiative is I-STREET, a real-world testbed for emerging transportation technologies, such as autonomous vehicles. I-STREET is deploying hundreds of sensors in locations around the UF campus and Gainesville to optimize the infrastructure for operating both conventional and autonomous vehicles together on city streets, alongside pedestrians, bicyclists and scooters.

The institute is also home to McTrans, the largest transportation software dissemination center in the world. McTrans develops, distributes and supports software for such applications as measuring highway capacity and timing traffic signals.

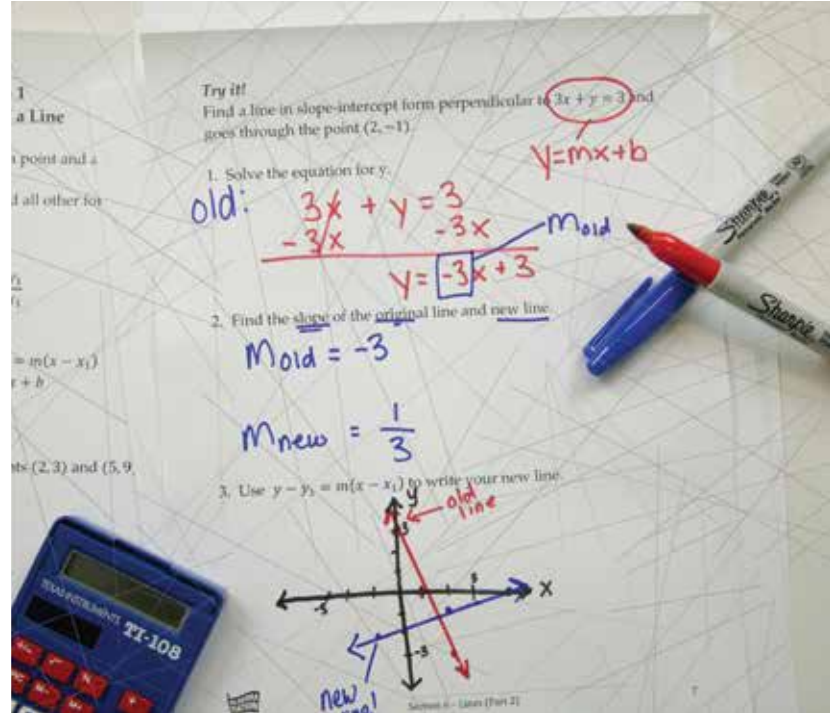
Understanding Nitrogen

Researchers from UF's Institute of Food and Agricultural Sciences are leading a \$7.3 million **U.S. Department of Energy** project to pinpoint genes that could improve plants' ability to access nitrogen, an essential nutrient for plant growth.

Enhancing plants' nitrogen uptake could increase food security by promoting crop growth in poor soils and could reduce the need for nitrogen fertilizers, lowering costs for farmers and lessening environmental damage caused by runoff.

Most plants can only obtain nitrogen from the soil, which offers a limited supply. Many crops depend on nitrogen fertilizers to survive and produce high yields. But some plants, such as legumes, have a unique way of working around this problem, researchers said. They have evolved a fine-tuned partnership with root-dwelling bacteria that capture nitrogen from the atmosphere and change it into a form that the plant can absorb and use, a process known as nitrogen fixation.

Understanding the evolutionary origins of this partnership and identifying the genes responsible for nitrogen fixation could enable scientists to introduce these genes into other plants. Adding these genes to crops such as wheat, corn and rice could decrease the amount of nitrogen fertilizer they require and increase crop productivity.



Women's Heart Disease

UF is leading a \$14.9 million **U.S. Department of Defense** study of a type of heart disease that disproportionately affects women, who now make up nearly 18 percent of active-duty military personnel.

Recent studies have shown that women with non-obstructive coronary artery disease (CAD) — which was once considered a benign condition — are at increased risk of life-threatening cardiovascular events.

UF is spearheading a four-year clinical trial of more than 4,400 women — primarily active-duty personnel, veterans and dependents living in Florida — to determine whether aggressive treatment of non-obstructive CAD with medication and lifestyle modification will reduce the likelihood of stroke, heart attack, heart failure, hospitalization and death. Women will be enrolled in the trial for 15 months and then be tracked for up to three years, with half receiving aggressive treatment with medication while the other half receives no structured care, which has been the traditional approach.

More than 60 percent of women who are referred for coronary angiography after complaining of chest pain and other symptoms are eventually diagnosed with non-obstructive CAD, or even no cardiovascular disease at all. That amounts to at least 250,000 women annually, according to one National Institutes of Health-funded project. The lifetime financial burden of non-obstructive CAD complications is estimated at more than \$750,000.

Virtual Learning

UF College of Education researchers are using a \$9 million grant from the **U.S. Department of Education** to develop a Virtual Learning Lab (VLL), where they are mining massive data sets of test scores, student records, teacher evaluations and other sources to create personalized curricula for math students. Instead of one-size-fits-all lesson plans geared to some “statistically average” student profile, teachers are increasingly able to customize instruction for individual students.

The researchers are focusing on online or virtual learners, relying on the hot, new education technology of “big data” learning analysis. Their approach has them using powerful supercomputers to rapidly scrutinize the massive education data, plus figures from students’ use of interactive or group learning tools.

One of the most useful sources of learning data is Algebra Nation, a popular online tutoring tool developed at UF in 2013, which has been used by more than 3,000 teachers and 200,000 math students from all 67 Florida school districts, primarily to prepare high school freshmen for the mandatory end-of-course exam in algebra 1.

They are also testing the models they are developing using Algebra Nation, comparing test results of students using the personalized version of Algebra Nation with the scores of students who used the regular version.



P.O. Box 115500
Gainesville, Florida 32611-5500

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David Norton, Ph.D.
Vice President for Research
223 Grinter Hall
P.O. Box 115500
Gainesville, Florida 32611
(352) 392-9271
dpnorton@ufl.edu

Research Development
Sobha Jaishankar, Ph.D.
Assistant Vice President
(352) 392-4804
sjaishan@ufl.edu

Sponsored Programs
Stephanie Gray
Assistant Vice President
(352) 392-3516
slgray@ufl.edu

Contracts & Grants
Tiffany Schmidt
Assistant Vice President
(352) 392-1235
tcasi@ufl.edu

Research Integrity
Cassandra Farley
Marsha Pesch
Associate Directors
(352) 392-9174
cfarley@ufl.edu
mpesch@ufl.edu

UF Innovate
Jim O'Connell
Assistant Vice President
(352) 392-8929
jimococonnell@ufl.edu

**Research Operations
& Services**
Michael Mahoney
Director
(352) 392-9271
mmahoney@ufl.edu

Research Communications
Joseph Kays
Director
(352) 392-8229
joekays@ufl.edu

research.ufl.edu