



RESEARCH

BOARD OF TRUSTEES REPORT
APRIL 2022



Accelerating the Future
Through the Virtual Prototyping
Autonomous Vehicles



» From the Vice President for Research

Dear Board of Trustees members,

I hope you all are doing well and that 2022 has been a prosperous, healthy year for you so far.

I can proudly say our research enterprise has had an exciting start to 2022. The latest Carnegie Classification released in January reconfirmed Clemson as a Carnegie R1 institution, placing us among the most active, respected research institutions in the country. Being an R1 institution helps Clemson recruit the best faculty and students, opens the door for more collaboration and funding, boosts our overall national reputation, and attracts industry looking for a reputable, world-class academic research partner in South Carolina. Our recognition as a Carnegie R1 university is a major achievement, a key goal of our ClemsonForward strategic plan, and reflective of a total team effort.

Additionally, the U.S. Army has rewarded Clemson researchers with an additional \$22 million to advance a project to develop the next generation of autonomous on- and off-road vehicles. You may recall that the U.S. Army DEVCOM Ground Vehicle Systems Center (GVSC) initially awarded Clemson \$18 million in 2020. It has now invested \$40 million in the project. This is a tremendous endeavor involving more than 60 faculty members, 74 master's and PhD students, and 11 academic departments. You can read more about the project on [page 3](#).

In February, we welcomed U.S. Energy Secretary Jennifer Granholm to the Dominion Energy Innovation Center at our Lowcountry campus. Secretary Granholm visited the research center as she was highlighting advancements in clean energy innovation. She commented favorably about Clemson's unique, world-class facility. Read more on [page 4](#).

Also, our research enterprise has maintained its positive momentum:

- Newly released data shows total research and development at expenditures at Clemson during 2021 were \$237 million ([page 5](#)).
- Competitive expenditures are up 30% through the second quarter from the prior year ([page 6](#)).
- Clemson faculty continue to seek high-value research funding ([page 7](#)), and research awards remain strong at \$76 million through the second quarter ([page 8](#)).

Comprehensive data on our research activity through the second quarter of fiscal year 2022 is included in the report card on [pages 9-12](#). Behind these figures are Clemson faculty members and students doing extraordinary things. While this report does not have our typical "Focus on Faculty" section because we are not having a Research and Economic Development Committee meeting, I have included some examples of the great recognitions our faculty and students are receiving on [pages 13-19](#).

Finally, I am honored to introduce our nominees for the 2022 Researcher of the Year. This is an outstanding group of scholars who are working tirelessly to improve society through research. Meet the nominees on [pages 20-21](#). We will announce the winners at the annual Research Symposium on May 10 ([page 22](#)).



Respectfully submitted,

A handwritten signature in black ink that reads "Tanju Karanfil". The signature is fluid and cursive.

Tanju Karanfil, Ph.D., PE, BCEE, IWA Fellow

Vice President for Research, Clemson University

» \$22M U.S. Army Contract



From Left: Angie Leidinger, vice president for external affairs; Clemson University President Jim Clements; U.S. Sen. Lindsay Graham; and David Gorsich, chief scientist of the U.S. Army Ground Vehicle Systems Center.

Clemson University and the United States Army DEVCOM Ground Vehicle Systems Center (GVSC) announced an additional \$22 million for a research partnership aimed at developing innovative virtual prototyping tools for designing the next generation of on- and off-road vehicles, with the U.S. government committing up to \$100 million to the project. The U.S. Army contributed an initial \$18 million for the center in 2020. An additional \$22 million committed in 2021 was formally obligated on February 24, 2022. The Virtual Prototyping of autonomy-enabled Grounds Systems (VIPR-GS) Research Center at Clemson University is providing new simulation and digital engineering capabilities, as well as hardware demonstrations to increase efficiency in design-to-build processes in support of GVSC's ambitious goals for rapid modernization of U.S. Army fleets.

Clemson University President Jim Clements and U.S. Army GVSC chief scientist David Gorsich made the announcement. They were joined by U.S. Senator Lindsey Graham and Zoran Filipi, founding director, Virtual Prototyping of Ground Systems (VIPR-GS) Center. The announcement took place at the Clemson University International Center for Automotive Research campus in Greenville. [READ MORE](#)

“ The deployment of autonomous vehicles is a priority for the United States Army, and Dr. Filipi and the Clemson VIPR-GS team are uniquely positioned to facilitate the rapid development of virtual prototyping to expedite the technology roadmap development and transformation of U.S. Army ground vehicles.



David Gorsich,
Chief Scientist, U.S. Army GVSC

» U.S. Energy Secretary Visit



From Left: Clemson University President Jim Clements, U.S. Secretary of Energy Jennifer Granholm, Dominion Energy Innovation Center Executive Director Meredyth Crichton, and Clemson Vice President for Research Tanju Karanfil.

U.S. Energy Secretary Jennifer Granholm toured the Dominion Energy Innovation Center at the Clemson University Restoration Institution Feb. 17 as she highlighted innovation in green energy technology. Sec. Granholm was joined by U.S. Congressman Jim Clyburn and commented favorably on the infrastructure in place at the research center.

The Dominion Energy Innovation Center (EIC) features both the Duke Energy eGRID – an electrical grid simulator that can replicate any grid in the world – and the world’s most-advanced wind-turbine drivetrain testing facility capable of full-scale highly accelerated mechanical and electrical testing of advanced drivetrain systems for wind turbines.

At the EIC, Clemson researchers are testing grid capability, controls, connections and security from cyberattacks. They are testing equipment systems, such as wind turbine machine heads, solar inverters, and high- efficiency gas turbines for efficiency and durability. Research at EIC helps provide reliable and low-cost energy, prevent grid blackouts and helps companies maintain power during hurricanes and other critical situations. Additionally, students working in the state-of-the-art labs are learning the technical skills to work in the expanding energy industry.

“ There’s a real opportunity here for South Carolina to be a leader in the South, along the Atlantic Coast, in this technology, which by the way will bring thousands of good-paying jobs for people.”



Jennifer Granholm,
U.S. Secretary of Energy

» Total R&D Expenditures

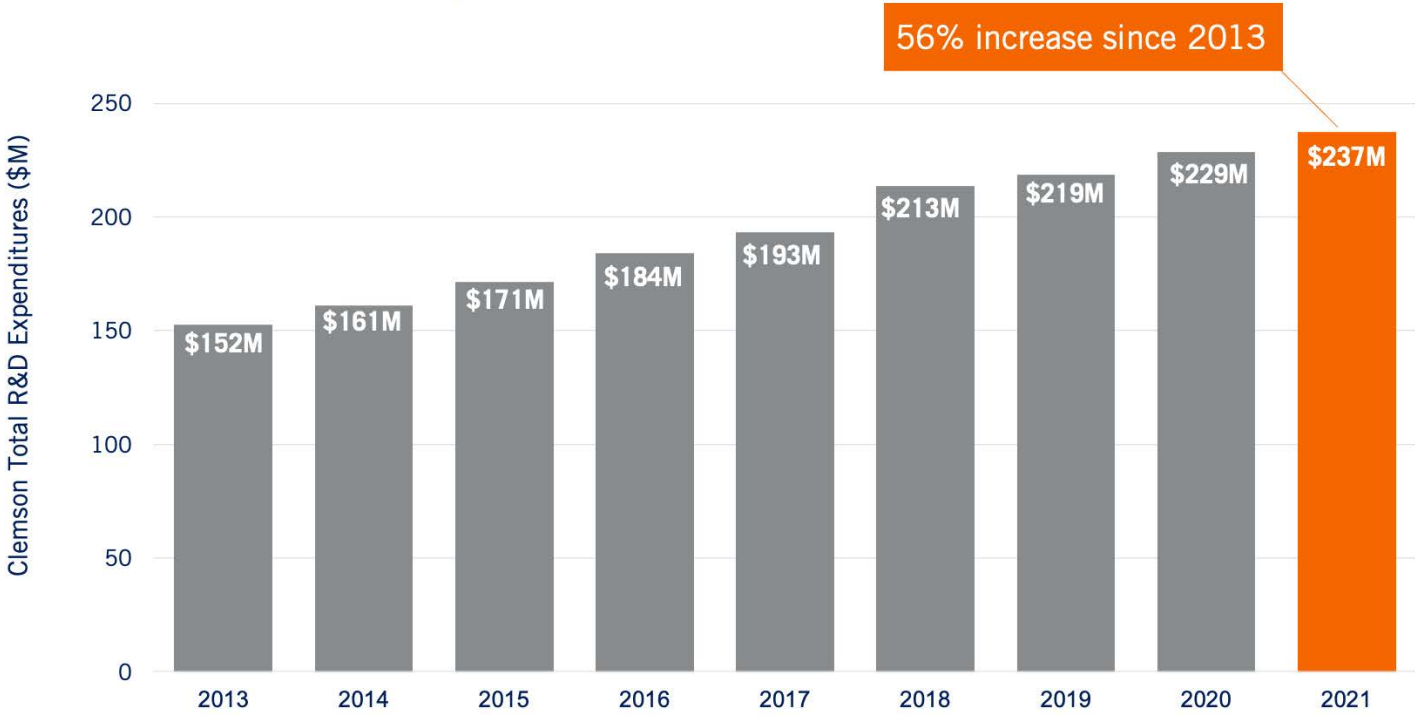
The latest National Science Foundation Higher Education Research and Development (HERD) Survey has just been released, showing that total R&D expenditures for Clemson in 2021 were \$237 million.

This data includes expenditures on all research revenue, including state support, gifts, external research services, competitive awards, and other sources.

The HERD Survey is the primary source of information on research and development expenditures at U.S. colleges and universities. The survey collects information on R&D expenditures by field of research and source of funds and also gathers information on types of research, expenses, and headcounts of R&D personnel. The survey is an annual census of institutions that expended at least \$150,000 in separately accounted for R&D in the fiscal year.

Total R&D expenditures from the HERD Survey are used in the Carnegie Classification and allow for an apples-to-apples compares of research expenditures at peer Carnegie R1 institutions.

► FY2013-2021 Total Expenditures



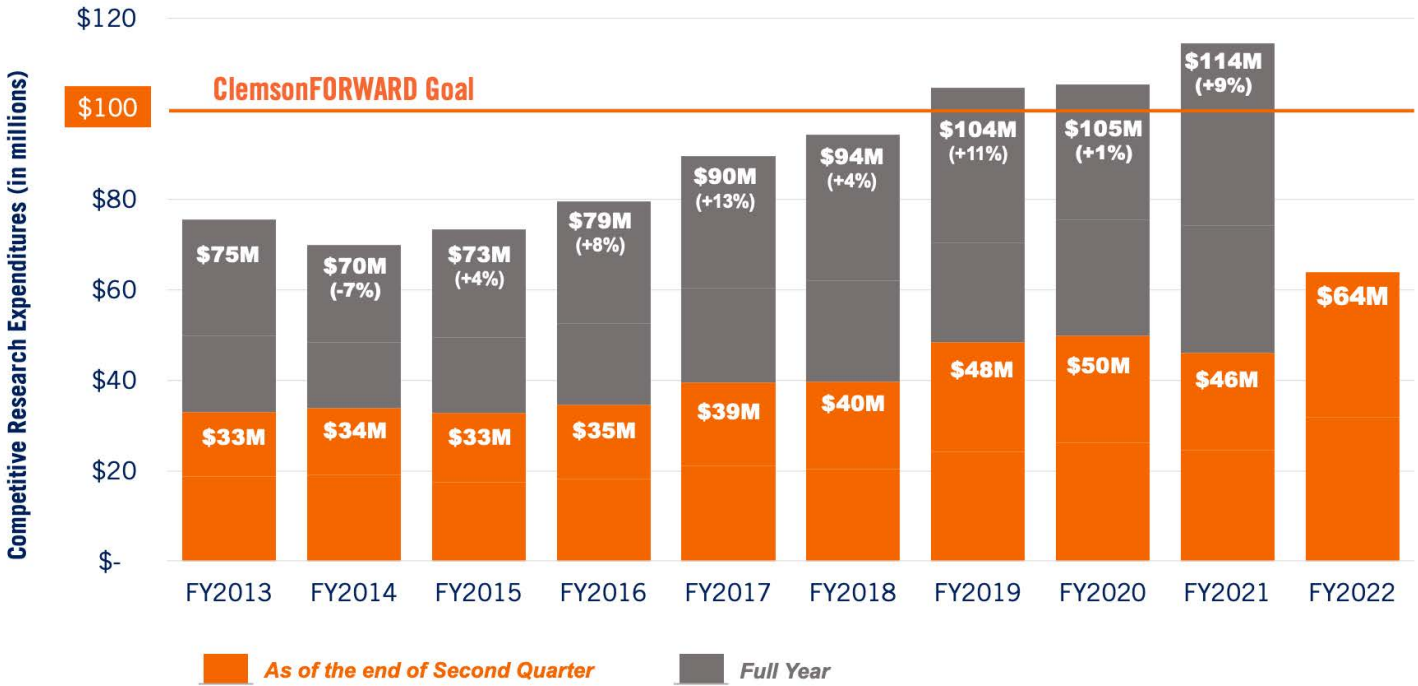
SOURCE: NSF Higher Education Research and Development (HERD) Survey

Competitive Expenditures

Clemson recorded its highest level of competitive expenditures of the past decade during the first two quarters of the fiscal year 2022. Competitive expenditures are up nearly 40 percent at \$64 million when compared to the same two quarters of the prior fiscal year. The chart below displays competitive expenditures for the first two quarters of each year in the orange bar. The gray bar displays full year-end data.

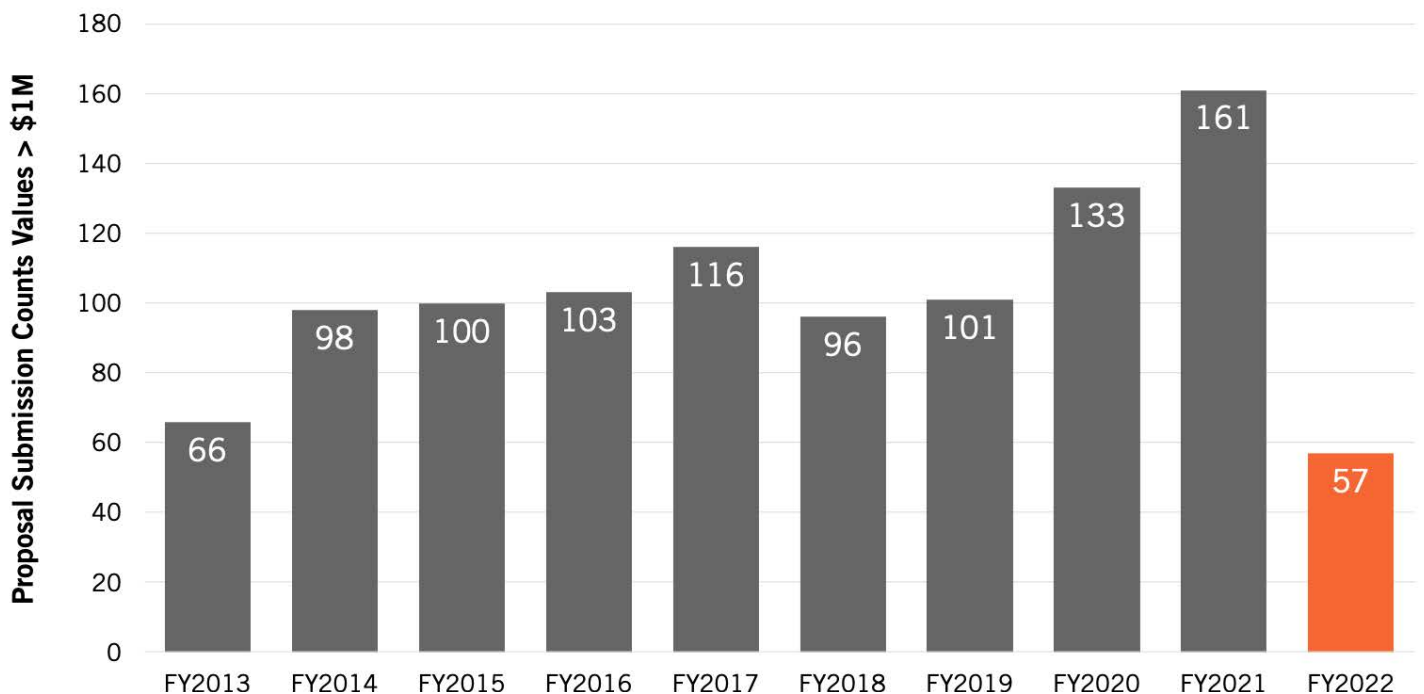
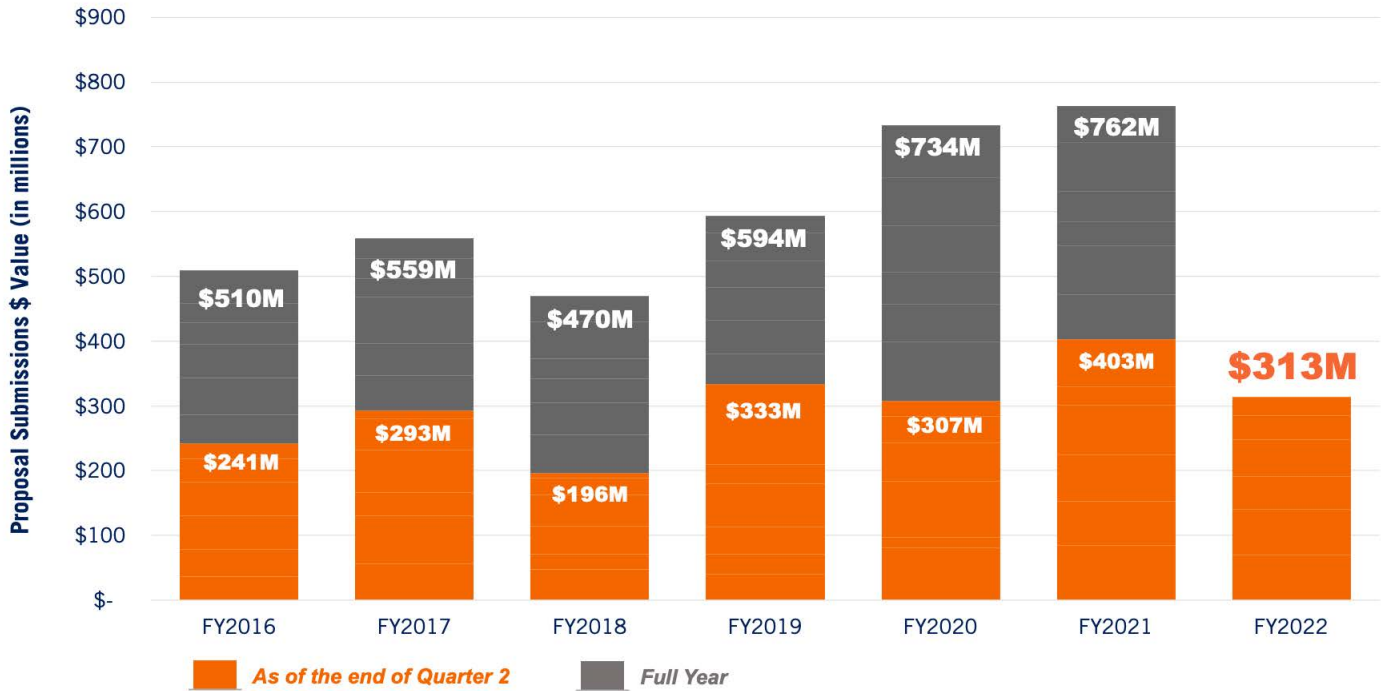
Competitive expenditures include funds only from competitively bid projects, such as highly competitive federal grant awards. In the ClemsonForward strategic plan, Clemson University aimed to surpass \$100 million in annual competitive expenditures by 2026. Clemson achieved that goal (marked on the graph below with an orange line) seven years ahead of schedule in 2019 and notched more than \$100 million in competitive expenditures again in fiscal years 2020 and 2021. FY2022 is off to a strong start.

FY2013-2022 Competitive Research Expenditures



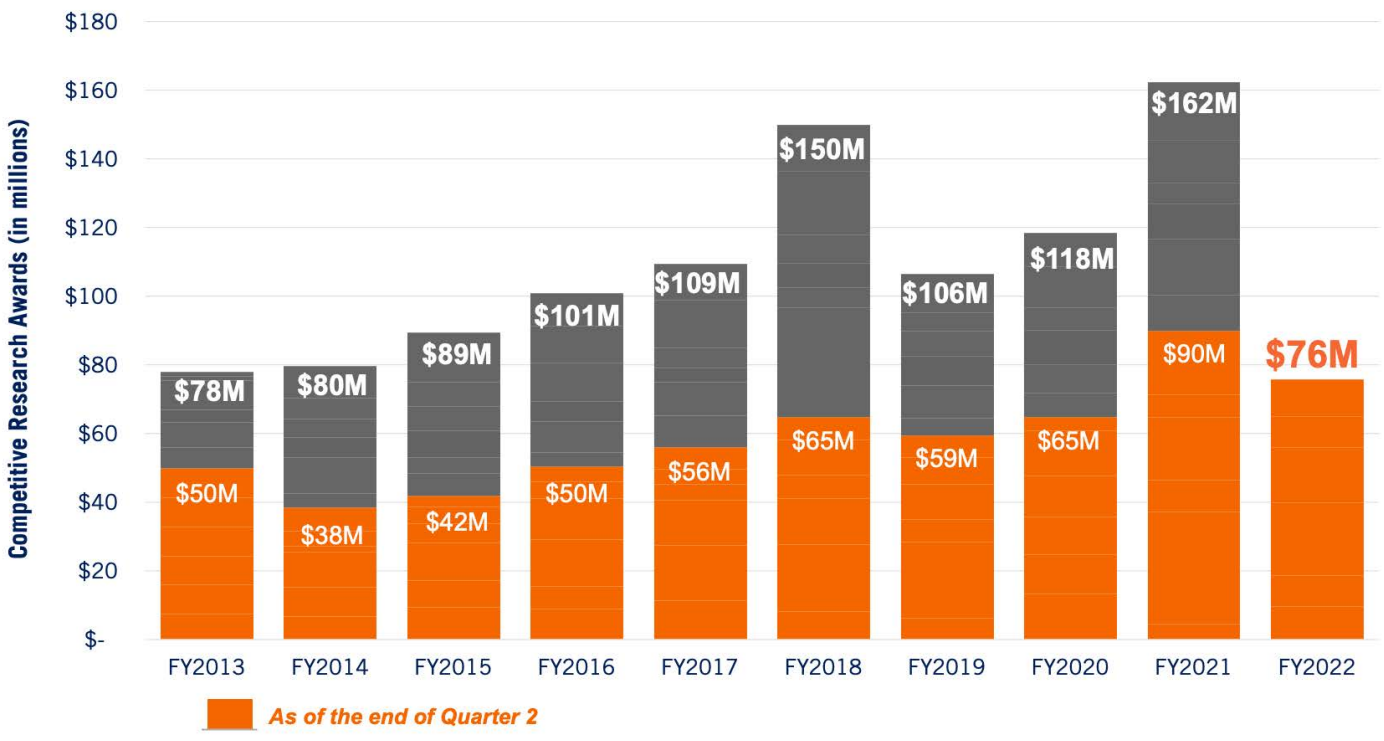
» Proposal Submissions

The orange bar in the chart below displays proposal submissions through the first two quarters of each fiscal year. The gray bar displays year-end data. The chart at the bottom of the page displays the number of proposal submissions valued at or above \$1 million.



» Competitive Research Awards

Funding agencies continue to reward relevant proposals and ideas from Clemson faculty. In particular, Clemson faculty are earning higher value awards of \$2 million and more, as shown in the graphic at the bottom of the page. This is fueling an ongoing upward trajectory in research awards received, as shown in the chart below. FY2021 was particularly strong with awards up 37 percent from the prior year. FY2022 is off to strong start. The orange bar displays awards received during the first two quarters of each fiscal year. The gray bar displays year-end data.



Earning High-Dollar Awards

69

**RESEARCH AWARDS
OF AT LEAST \$2M
WON SINCE 2015**

**THE TOTAL
VALUE OF THESE
PROJECTS IS**

\$312

MILLION

Research Report Card (through 2nd Quarter FY2022)

INDEX

CAAH: College of Architecture, Arts & Humanities

CAFLS: College of Agriculture, Forestry & Life Sciences

CBSHS: College of Behavioral, Social & Health Sciences

CECAS: College of Engineering, Computing & Applied Sciences

COE: College of Education

COB: College of Business

COS: College of Science

CCIT: Clemson Computing & Information Technology

PSA: Public Service & Agriculture

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 2nd Quarter	
a. Proposal Submissions by Number		1,414	1,443	1,489	1,478	1,529	1,451	1,417	1,729	1,583	634	
1	CAAH	38	51	65	62	69	64	69	76	61	17	
2	CAFLS	235	230	224	222	241	229	377	473	401	151	
3	CBSHS	81	93	102	104	112	101	105	143	151	65	
4	CECAS	549	555	582	617	618	587	562	672	596	266	
5	COE	51	54	39	45	46	37	39	42	37	18	
6	COB	7	15	13	15	7	10	5	11	14	4	
7	COS	242	247	263	239	230	227	186	219	229	79	
8	CCIT	12	12	6	3	5	1	1	1	-	-	
9	PSA	88	90	118	97	170	163	33	37	26	10	
10	VP for Res & Interdisc Inst	31	17	7	17	14	12	25	29	29	16	
11	All Other	80	79	70	57	17	20	15	26	39	8	
b. Proposal Submissions by Dollar Value (in millions)		\$386M	\$547M	\$507M	\$510M	\$559M	\$470M	\$594M *	\$734M	\$762.4M	\$313.4M	FY2022 Targets
12	CAAH	N/A	N/A	\$9.4	\$8.6	\$3.1	\$5.7	\$4.4	\$5.9	\$5.6	\$5.1	\$7.7
13	CAFLS	N/A	N/A	\$42.6	\$23.8	\$43.4	\$37.1	\$68.4	\$92.9	\$84.1	\$44.4	\$70.9
14	CBSHS	N/A	N/A	\$28.4	\$40.1	\$41.4	\$25.9	\$87.5	\$41.1	\$64.3	\$28.7	\$53.1
15	CECAS	N/A	N/A	\$260.5	\$281.2	\$306.4	\$235.5	\$255.3	\$405.9	\$342.9	\$150.5	\$338.7
16	COE	N/A	N/A	\$13.8	\$14.7	\$18.1	\$19.1	\$10.1	\$18.9	\$22.4	\$13.1	\$16.5
17	COB	N/A	N/A	\$7.5	\$4.3	\$2.8	\$1.8	\$2.1	\$2.9	\$4.2	\$1.9	\$2.5
18	COS	N/A	N/A	\$100.2	\$111.3	\$95.9	\$100.4	\$73.8	\$129.3	\$175.4	\$54.8	\$106.5
19	CCIT	N/A	N/A	\$4.3	\$2.0	\$4.0	\$0.9	\$4.6	\$3.0	\$0.02	-	-
20	PSA	N/A	N/A	\$23.3	\$10.4	\$31.3	\$25.8	\$11.4	\$6.4	\$5.6	\$5.9	\$17.2
21	VP for Res & Interdisc Inst	N/A	N/A	\$5.6	\$7.7	\$6.0	\$12.7	\$68.5	\$19.8	\$22.3	\$8.0	
22	All Other	N/A	N/A	\$11.4	\$5.6	\$6.0	\$5.0	\$7.4	\$7.7	\$35.7	\$1.1	

*This figure includes a large \$107M proposal

» Research Report Card (through 2nd Quarter FY2022)

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 2nd Quarter
c. Research Awards (in millions)		\$78.0M	\$79.7M	\$89.3M	\$100.9M	\$109.5M	\$149.8M	\$106.3M	\$118.3M		\$75.6M
23	CAAH	\$0.2	\$0.6	\$0.7	\$1.4	\$0.5	\$1.9	\$2.0	\$1.4	\$1.4	\$0.4
24	CAFLS	\$7.3	\$6.7	\$14.1	\$8.6	\$10.9	\$13.9	\$14.2	\$22.3	\$24.2	\$10.0
25	CBSHS	\$2.7	\$3.4	\$4.8	\$5.1	\$4.6	\$8.1	\$5.9	\$7.7	\$17.4	\$5.2
26	CECAS	\$34.2	\$37.7	\$48.2	\$45.5	\$54.0	\$80.8	\$50.4	\$48.0	\$75.0	\$37.2
27	COE	\$2.6	\$4.1	\$3.2	\$2.9	\$2.8	\$4.5	\$3.3	\$2.3	\$5.1	\$2.7
28	COB	\$2.0	\$1.1	\$1.3	\$0.8	\$1.2	\$1.1	\$0.8	\$1.2	\$0.2	\$0.8
29	COS	\$10.3	\$7.8	\$9.9	\$15.6	\$19.9	\$14.7	\$18.7	\$14.2	\$25.4	\$8.6
30	CCIT	\$1.6	\$5.7	\$0.7	\$0.8	\$0.5	\$1.3	\$0.1	\$0.3	\$0.7	\$0.2
31	PSA	\$14.8	\$12.3	\$9.6	\$13.0	\$7.9	\$6.6	\$4.0	\$4.1	\$5.8	\$5.6
32	VP for Res & Interdisc Inst	\$1.8	\$0.3	\$0.6	\$5.1	\$5.0	\$15.1	\$6.2	\$14.6	\$5.1	\$4.1
33	All Other	\$0.3	\$0.2	\$1.2	\$2.0	\$1.2	\$1.7	\$0.7	\$2.2	\$1.9	\$0.9
d. National Young Investigator Awards		4	3	4	7	9	8	6	10	10	
34	NSF CAREER Awards (by start date)	4	1	3	5	7	7	4	6	9	-
35	NIH KO1	-	-	-	-	1	1	-	1	-	-
36	Air Force Young Investigator Awards	-	-	1	2	1	-	1	-	-	-
37	Army Young Investigator Awards	-	-	-	-	-	-	-	1	-	-
38	DARPA Young Investigators Awards			-	-	-	-	-	1	-	-
39	EPA Earley Career Awards	-	-	-	-	-	-	1	-	-	-
40	DOE Early CAREER Awards	1	-	-	-	-	-	-	-	1	-
41	Department of Homeland Security	-	1	-	-	-	-	-	-	-	-
42	Dept. of Ed. Inst. of Educational Sciences	-	-	-	-	-	-	-	1	-	-
e. Supporting Workforce											
43	Graduate Student Enrollment	4,206	4,372	4,670	4,664	4,425	4,985	5,282	5,627	5,538	5,716
44	Sponsored Graduate Research Assistants	822	745	707	693	696	761	558	637	546	653
45	Postdoctoral Fellows	48	64	83	85	90	97	98	98	106	113
46	Research Faculty: Permanent 100% Non-E&G Funded	6	6	6	11	17	14	11	18	12	6
47	Research Faculty: Temporary 100% Non-E&G Funded	18	18	15	14	24	27	29	54	45	35

» Research Report Card (through 2nd Quarter FY2022)

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 2nd Quarter
f. Sponsored Research Expenditures by Business Unit (in millions)		\$75.4M	\$70.0M	\$73.3M	\$79.5M	\$89.5M	\$94.2M	\$104.5M	\$105.3M	\$114.4M	\$63.8M
48	CAAH	\$0.5	\$0.4	\$0.4	\$1.1	\$1.3	\$1.4	\$1.7	\$1.6	\$1.1	\$0.6
49	CAFLS	\$8.8	\$7.7	\$6.8	\$8.6	\$11.1	\$11.0	\$14.1	\$16.4	\$15.0	\$7.3
50	COB	\$1.2	\$1.2	\$1.1	\$1.0	\$0.9	\$0.8	\$0.8	\$0.7	\$0.7	\$0.3
51	CECAS	\$35.0	\$35.0	\$35.0	\$37.5	\$42.9	\$45.1	\$50.3	\$46.4	\$54.4	\$33.2
52	CBSHS	\$3.1	\$2.8	\$3.7	\$4.1	\$4.4	\$4.9	\$5.3	\$6.7	\$9.0	\$5.1
53	COE	\$3.3	\$3.3	\$3.8	\$2.5	\$2.6	\$2.2	\$2.5	\$2.4	\$2.3	\$1.4
54	COS	\$13.2	\$10.5	\$9.3	\$11.3	\$14.8	\$16.7	\$17.2	\$17.3	\$15.9	\$7.9
55	CCIT	\$2.0	\$1.6	\$3.4	\$2.8	\$0.4	\$0.6	\$0.2	\$0.1	\$0.2	\$0.3
56	PSA	\$4.7	\$4.9	\$5.8	\$5.6	\$5.7	\$5.9	\$3.7	\$3.9	\$5.5	\$3.8
57	VP for Res & Interdisc Inst	\$1.9	\$1.3	\$1.9	\$3.5	\$3.9	\$3.9	\$7.1	\$9.5	\$9.6	\$3.4
58	All Other	\$1.7	\$1.7	\$2.2	\$1.5	\$1.5	\$1.6	\$1.5	\$0.4	\$0.7	\$0.4
g. Sponsored Research Expenditures by Innovation Cluster (in millions)		\$75.4M	\$70.0M	\$73.3M	\$79.5M	\$89.5M	\$94.2M	\$104.5M	\$105.3M	\$114.4M	\$63.8M
59	Advanced Materials	\$14.3	\$11.3	\$10.7	\$10.4	\$10.7	\$12.1	\$15.4	\$13.5	\$14.3	\$9.3
60	Cyberinfrastructure & Big Data Science	\$10.3	\$10.5	\$10.1	\$8.9	\$8.1	\$9.6	\$6.9	\$4.4	\$5.5	\$3.9
61	Energy, Trans. & Advanced Manufacturing	\$4.7	\$5.7	\$7.2	\$7.6	\$17.8	\$16.8	\$17.1	\$14.5	\$19.9	\$12.8
62	Health Innovation	\$13.1	\$10.2	\$10.2	\$12.5	\$16.3	\$17.8	\$23.8	\$27.1	\$27.1	\$12.4
63	Human Resilience	\$8.2	\$7.7	\$9.7	\$9.8	\$7.8	\$8.6	\$9.0	\$9.7	\$12.7	\$6.2
64	Sustainable Environments	\$18.3	\$16.9	\$17.9	\$21.7	\$18.9	\$19.5	\$20.6	\$23.9	\$21.3	\$11.6
65	Other	\$6.5	\$7.6	\$7.4	\$8.6	\$9.9	\$9.6	\$11.7	\$12.1	\$13.6	\$8.2
h. Sponsored Research Expenditures by Funding Source (in millions)		\$75.4M	\$70.0M	\$73.3M	\$79.5M	\$89.5M	\$94.2M	\$104.5M	\$105.3M	\$114.4M	\$63.8M
66	Federal Government	\$62.9	\$56.9	\$58.5	\$65.1	\$74.6	\$78.2	\$85.1	\$85.2	\$95.1	\$56.8
67	Foundations, Societies, and Associations	\$4.2	\$4.3	\$4.7	\$4.1	\$4.7	\$5.1	\$7.4	\$6.9	\$6.2	\$2.2
68	Industry/Other	\$4.9	\$5.6	\$6.1	\$6.9	\$6.8	\$6.3	\$5.3	\$5.5	\$4.8	\$2.2
69	International	\$0.8	\$0.6	\$0.8	\$0.8	\$0.5	\$0.4	\$0.3	\$0.3	\$0.4	\$0.2
70	Local Government	\$0.6	\$0.6	\$0.6	\$0.5	\$0.5	\$0.5	\$0.5	\$0.5	\$0.8	\$0.4
71	State Government	\$1.9	\$1.9	\$2.7	\$2.0	\$2.4	\$3.7	\$5.7	\$6.8	\$7.3	\$2.7

» Research Report Card (through 2nd Quarter FY2022)

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 2nd Quarter
i. Sponsored Research Expenditures per T/TT Faculty by College											
72	CAAH	\$3,299	\$2,264	\$2,343	\$5,841	\$8,177	\$8,945	\$10,159	\$10,003	\$6,912	\$3,709
73	CAFLS	\$88,570	\$81,120	\$69,612	\$84,618	\$105,396	\$103,814	\$134,555	\$137,438	\$131,195	\$59,178
74	COB	\$14,415	\$13,047	\$11,510	\$9,683	\$8,855	\$8,269	\$8,200	\$6,991	\$7,132	\$2,848
75	CECAS	\$169,754	\$160,698	\$163,406	\$163,685	\$194,323	\$214,280	\$225,620	\$201,553	\$223,843	\$134,566
76	CBSHS	\$27,982	\$26,853	\$33,764	\$42,376	\$34,751	\$39,532	\$40,301	\$50,495	\$67,202	\$38,132
77	COE	\$54,779	\$51,688	\$62,195	\$38,037	\$44,483	\$40,197	\$47,371	\$47,742	\$48,805	\$30,712
78	COS	\$95,724	\$72,421	\$61,912	\$77,589	\$95,956	\$110,206	\$118,600	\$116,020	\$107,258	\$50,704
79	Clemson Average	\$83,858	\$75,089	\$78,826	\$85,753	\$84,297	\$103,706	\$99,125	\$96,497	\$103,187	\$63,535
j. Additional information											
80	NIH R01-Equivalent Awards (by start date)	-	-	2	2	2	3	6	1	3	-
81	Doctorates Awarded (August and December)	187	217	237	233	231	234	301	249	225	144
82	STEM Doctorates Awarded (August and December)	118	153	165	138	156	171	174	162	159	108
83	Disclosures	102	129	70	60	65	51	62	68	44	26
84	Patents	16	15	15	14	18	11	18	12	15	18
85	Licenses/Options	9	7	7	5	10	11	19	13	13	10
86	Licensing Revenue		\$762,811	\$360,131	\$354,827	\$539,490	\$461,755	\$398,136	\$315,578	\$239,074	\$180,792
87	Start-up Companies (based on licenses/options)	1	4	4	2	3	3	5	1	1	1

» Honors, Recognitions & Impacts

Clemson professor, Fulbright Scholar serving as Canada Research Chair in Global Governance

A Clemson University faculty member has earned a Fulbright Scholar Award and is serving as the 2021-2022 Canada Research Chair in Global Governance at the Balsillie School of International Affairs in Waterloo, Ontario.

William Haller, associate professor in the Clemson University Department of Sociology, Anthropology and Criminal Justice, began his term as research chair at the Balsillie School of International Affairs in September 2021. He will conclude his term in summer 2022.

Haller is studying the differences in the evolution of socio-political cultures in Canada, Spain and the U.S. to better understand their differences in immigrant integration.

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Policy Studies Ph.D. student receives global fellowship

Clemson University policy studies Ph.D. candidate Chikezie Isiguzo has earned a global fellowship that will help him in efforts to fight and prevent financial crime.



The fellowship comes from the Association of Certified Anti-Money Laundering Specialists (ACAMS), the world's largest organization of anti-money laundering professionals.

The award allowed Isiguzo to earn a Certified Anti-Money Laundering FinTech Compliance Associate (CAFCA) certification and gain access to financial technology resources, professional development, and networking opportunities in digital finance.

Isiguzo was one of only 30 recipients to receive the fellowship and chance to earn CAFCA certification.

"I am excited to be among the first to receive this certification, which will not only advance my career but also help me with resources relevant for my research going forward," Isiguzo said. "My goal is to work alongside the professionals who lend their skills and knowledge to support a safer financial system."

[READ MORE](#)

Clemson MBA grad Nicole Andrews recognized in Top 100 Under 50 Corporate Executive and Emerging Leaders by Diversity MBA Media

Nicole Andrews, a 2014 graduate of the Clemson University MBA program, was recognized as one of the Top 100 Under 50 Corporate Executive and Emerging Leaders in America in 2021 by Diversity MBA Media. This honor is awarded to those c-suite executives working to shape the future of corporate America for the better. Andrews earned her spot on the list for creating Diversity Equity and Inclusion (DEI) strategies in her workplaces and empowering others to achieve success in their careers by embracing their differences.

[continued on next page](#) ▶

» Honors, Recognitions & Impacts

► continued from previous page

Andrews graduated from Clemson with three degrees, Bachelor of Science in Management ('05), Master of Human Resources Development ('13), and Master of Business Administration ('14).

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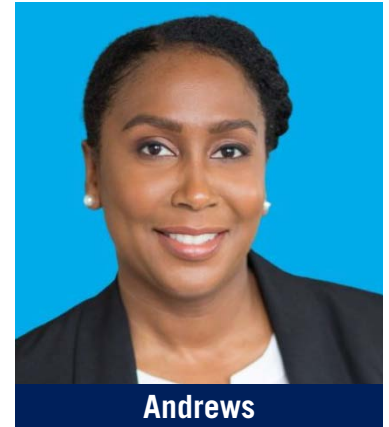
SAS makes \$3.3M gift to Clemson University to aid in education and research

Big data propels the modern world. Thanks to the generosity of analytics leader SAS, Clemson students, faculty and approved staff can harness the power of big data with SAS® software to create meaningful change.

SAS has gifted Clemson \$3.3 million in licensing for teaching and academic research. In a renewal of a previous gift from 2017, SAS has committed to supporting Clemson's mission through 2026 by providing access to a suite of programs that enhance undergraduate and graduate education, support research efforts and encourage institutional success.

The gift from SAS includes access to SAS® Viya®, the company's flagship AI, machine learning, analytics and data management platform. SAS Viya enables users to transform raw data into powerful insights. These insights will allow Clemson researchers to make sense of large data sets and explore a wide variety of critical topics, such as racial inequities in education, wildlife disease, addiction, agriculture and the human genome.

[READ MORE](#)



Andrews

Fadi Abdeljawad honored with TMS Early Career Faculty Fellow Award



Abdeljawad

Fadi Abdeljawad of Clemson University will be honored with an award and have an opportunity to speak to an audience of some of the top experts in his field at the annual meeting of The Minerals, Metals and Materials Society (TMS).

Abdeljawad is winning the society's Early Career Faculty Fellow Award. He is set to receive the award during the society's Annual Meeting & Exhibition, scheduled for Feb. 27-March 3, 2022 in Anaheim, California.

Abdeljawad is an assistant professor of mechanical engineering with a courtesy appointment in materials science and engineering.

The award "recognizes an assistant professor for his or her accomplishments that have advanced the academic institution where employed, and for abilities to broaden the technological profile of TMS," according to the society's website.

Abdeljawad's research aims to better understand nanomaterials with a specific focus on interfaces. The research could help lead to a range of innovations, including new energy technologies, lighter and stronger structures, and miniaturized devices.

[READ MORE](#)

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International conference will shine a light on Clemson University's strength in artificial intelligence

A Clemson University computer engineer and two of his Ph.D. students will have a chance to showcase their strength in artificial intelligence when researchers, practitioners, scientists and engineers from around the world gather for a major conference.

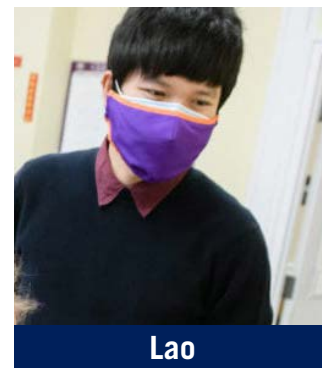
Yingjie Lao, an assistant professor, and students Joseph Clements and Bingyin Zhao, have altogether had three papers accepted to the 36th AAAI Conference on Artificial Intelligence.

Of the 9,020 papers reviewed, 15% were accepted to the conference.

All three of the Lao-group papers focus on enhancing security in artificial intelligence, an ever-growing important topic in AI research and applications.

Lao said the papers were a result of the research he and his team conducted as part of his CAREER award from the National Science Foundation.

[READ MORE](#)



Lao

Clemson Art Chair named to International Academy of Ceramics

Professor Valerie Zimany, chair of the Clemson University Department of Art, was one of ten U.S. artists inducted into the International Academy of Ceramics in 2021. Zimany was nominated by members of Japan, the United Kingdom and the United States. Candidates elected by the Council will be introduced during the 2022 General Assembly in Geneva by the President of the Academy.



Zimany

Founded in 1952, the IAC promotes international communication and collaboration between ceramic artists and encourages the highest level of quality in all-ceramic cultures. It is the only association devoted to the medium of clay that functions on an international level. Since 1958, it has been a partner with UNESCO, preserving ceramic art from around the world. The organization's membership represents 77 countries around the world.

To be an elected member of the IAC signifies the highest quality of excellence and achievement in the ceramic arts and introduces members to an international community that promotes contemporary ceramics through an extensive network of artists, critics, historians, writers, collectors, museums, galleries and institutions in the field. The interaction among its members promotes understanding and cultural exchange and its collective contributions significantly advance ceramic art worldwide.

Members of the IAC are regularly invited to participate in Congresses, residencies, to submit articles for publication as well as being asked to jury international exhibitions and competitions. [READ MORE](#)

Clemson professor awarded Kennedy Center Gold Medallion

Becky Becker, professor of theatre in the Clemson University Department of Performing Arts, received the Kennedy Center Gold Medallion Award at the 54th Kennedy Center American College

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Theater Festival region IV. Each year, the eight KCACTF regions honor individuals or organizations that have made extraordinary contributions to the teaching and producing of theatre and who have significantly dedicated their time, artistry and enthusiasm to the development of the festival. The award is the most prestigious regional honor given by the organization.

KCACTF is a national theatre program reaching 18,000 college and university students annually. In January and February each year, the eight regions host a festival to showcase productions, offer workshops and celebrate student work. The award is in recognition of Becker's work with the National Playwriting Program, which supports student playwrights in their development of new, original work through performances and dramaturgical practice. Becker served the organization for the past nine years. "I gave a lot of time, but so many people give their to the organization. It's humbling, because there are so many people who should be recognized," Becker said. [READ MORE](#)



Becker

Clemson professor wins national awards for crop science research

Sruthi Narayanan, an assistant professor of crop ecophysiology in Clemson University's Department of Plant and Environmental Sciences, has received two national awards for her work in crop science.

The awards were presented during the Crop Science Society of America (CSSA) annual meeting in Salt Lake City in November (2021).

The first is the CSSA Early Career Award. This award recognizes individuals who have made outstanding contributions in crop science within seven years of completing their final degree. Narayanan has an undergraduate degree in agriculture from Kerala Agriculture University, India, and master's and doctorate degrees in agronomy from Kansas State University. She graduated with her doctorate in May 2015. Narayanan is the first Indian woman to receive the CSSA Early Career Award.



Narayanan

Narayanan's research focuses on abiotic stress tolerance of crops. She studies plant responses to climate extremes and collaborates with crop breeders for developing climate-resilient varieties. She is known for her findings on applications of lipidomics for improving heat tolerance of plants. Narayanan provides leadership for multiple organizations and is serving CSSA in committees and as an associate editor of CSSA's Crop Science magazine.

In addition to the CSSA award, Narayanan also won the Association of Agricultural Scientists of Indian Origin (AASIO) Early Career Agricultural Scientist Award. This award is given annually in recognition of outstanding contributions made by an early career agricultural scientist of Indian origin who has received the terminal degree no more than seven years prior to the closing date for nominations, in any area of agronomy, crop science, natural science, horticultural science, soil science, environmental science, plant biology, or plant molecular biology. [READ MORE](#)

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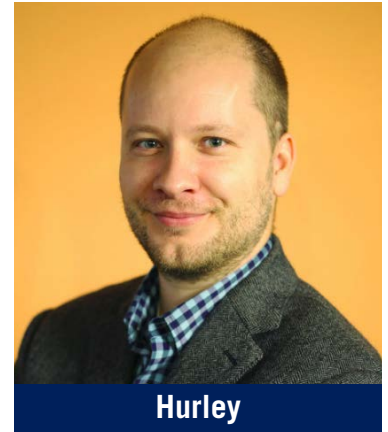
Clemson packaging science students win in design competitions

Three teams from Clemson University’s Packaging Science program used their knowledge to capture international awards for projects ranging from a skin care package to quarantine survival kits for shipping and gifts on the go.

The students were in Andrew Hurley’s Packaging Science 3200 class – Packaging Design Theory — during the Fall 2021 semester. This class covers human psychology as it relates to product and package development.

One of the teams won first place in the United States/United Kingdom division at the PIDA (Packaging Impact Design Award) competition. They traveled to Monaco along the French Riviera to present their Golden Bee Skin Care package design during the Grand Finale at Luxe Pack Monaco.

Two other Clemson teams won awards in the annual Student Packaging Design Competition held in Toronto, Ontario, Canada by AICC, The Independent Packaging Association. [READ MORE](#)



Hurley

College of Education faculty work to advance women in leadership through research, teaching



Carter

Women’s History Month was designed to study, observe and celebrate the vital role of women in American history, but for most of that history those “roles” were rarely the ones at the top of the corporate or organizational ladder. However, the last quarter century has seen substantial – although many would also say uneven – progress for women in leadership across industries.

From a record high number of CEOs on the Fortune 500 to an increasing number of women elected to high office across the globe, the outlook for women in leadership roles is steadily changing for the better. Two of the faculty members behind Clemson University’s Master of Human Resource Development program have a unique understanding of gender’s ever-evolving role in leadership across disciplines.



Sims

Angie Carter and Cynthia Sims aren’t just women who lead a program that prepares a diverse group of students to become leaders in their respective organizations – they also actively dedicate their research and service to the topic of leadership and specifically the role gender plays in it.

According to Carter, she and Sims are truly complimentary to one another in terms of research. Sims’ focus on quantitative research examines the intersection of leadership development, diversity, and inclusion and equity, while Carter uses qualitative methods to learn about individual leader’s stories that bring statistics to life.

Sims’ research continues to study the leadership needed to meet the developmental and workforce needs of women and what systems can be put

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in place to support their workplace advancement. She just completed a meta-analysis on African American women and leadership and is working to develop a journal that focuses on leadership and intersectional identities.

Carter and Sims' collaborative research has most recently examined barriers that get in the way of effective leadership for women and people of color. [READ MORE](#)

Clemson awarded \$2 million to research best approach for K-12 English language learners

The U.S. Department of Education has awarded faculty in the Clemson University College of Education a \$2.1 million grant to research the best approach for teachers working with English learners.



Kaminski

The researchers will spend the next five years working with school districts in the South Carolina Midlands to discover effective approaches that K-12 educators studying literacy and English for Speakers of Other Languages (ESOL) can use to improve their teaching practices, student outcomes and parent/caregiver involvement in student learning.

Two cohorts of 25 teachers – one from Richland School District Two and the other from Lexington County School District One – will participate in the research project while earning a Master of Education in Literacy that includes an ESOL certification from Clemson University. The grant will cover all tuition, application fees and test fees associated with the degree program.

Rebecca Kaminski serves as principal investigator for the project and coordinator for the literacy program. She said the project will equip teachers with tools to better do their job while also giving them the advanced graduate education that will help retain them in the field of education. The research will provide these tools in the short term and test a more effective way to include caregivers in education, all while providing a road map that other districts and states can follow to achieve better results. [READ MORE](#)

Clemson Science students place in SCBIO Challenge Accepted video contest

Two Clemson University students placed in SCBIO's Challenge Accepted video competition for their videos presenting research from the lab of Ramakrishna Podila, an associate professor in the Department of Physics and Astronomy, on inexpensive COVID-19 and tuberculosis sensors using smartphones.

Alan Rowland, a first-year graduate student in physics from Easley, South Carolina, and Dylan Carroll, a first-year genetics major from Knoxville, Tennessee, won second and third place, respectively.

Participating students created videos no longer than three minutes highlighting life science innovation or research in South Carolina. The videos were judged on



Rowland

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the content, production quality and creativity, and potential impact of their work on the industry.

The competition was part of SCBIO's annual conference held February 22-24 in Charleston. SCBIO is a member-driven organization formed to advance South Carolina's life science industry through collaboration, advocacy and resource support.

Carroll's video focused on how Analyte-induced disruption in luminance quenching (AIDLuQ) technology is used as a sensor. AIDLuQ uses regular printer paper coated with graphene particles that a smartphone could read to detect disease.



Carroll

Rowland's video focused on research that turns a smartphone into a spectrogram to detect tuberculosis, a bacterial infection that attacks the lungs. Tuberculosis is the leading infectious disease killer in the world. [READ MORE](#)

Identification of gene networks involved in uterine cancer could lead to better treatment options



Hickman

No single gene causes uterine cancer, the fourth most common cancer among women, which is on the rise in the U.S.

That's why Clemson University geneticist Allison Hickman's research focused on identifying networks of genes involved in uterine cancer that could be potential targets for more effective drug therapies.

The American Cancer Society estimates that nearly 66,000 women in the U.S. receive uterine cancer diagnoses this year. More than 12,500 women will die from the disease in 2022.

Using data from publicly available genomic databases, a mathematics-based distribution algorithm and Knowledge Independent Network Construction (KINC) software developed by her professor Alex Feltus in collaboration with Clemson alumnus and current Washington State University Assistant Professor Stephen Ficklin, Hickman built condition-specific biomarker systems for normal uterine tissue and two subtypes of uterine cancer — endometrial cancer, the most common type, and uterine carcinosarcoma, which is more rare, aggressive and deadly.

These systems allow for a more comprehensive look into the biological networks and pathways affected in uterine cancer than single-gene analyses done in previous studies.

"We're looking for patterns. In this study, we were able to distinguish genes that had different relationships in uterine cancer than they did in normal uterine tissue," said Hickman, who earned her Ph.D. in genetics from Clemson in December. "The ultimate goal is to gain a better understanding of what's happening biologically at the cellular level in these cancers so it can lead to better treatment in the future." [READ MORE](#)

» Researcher of the Year

The Researcher of the Year program recognizes the efforts of high-achieving faculty whose work is improving society through the generation and dissemination of new knowledge. The University recognizes one senior faculty member and one junior faculty member who received their terminal degree within the past 10 years. Faculty members are nominated by their colleges. Winners will be announced at the Research Symposium on May 10th.



Senior Faculty Nominees



Vernon Burton

Professor, History
College of Architecture,
Arts & Humanities



Joseph Ryan

*Distinguished Professor,
Education & Human
Development*
College of Education



Bryan Miller

*Associate Professor,
Sociology, Anthropology &
Criminal Justice*
College of Behavioral, Social
& Health Sciences



Christopher Saski

*Associate Professor, Plant
& Environmental Sciences*
College of Agriculture,
Forestry & Life Sciences



Brian Powell

*Professor, Environmental
Engineering & Earth Sciences*
College of Engineering,
Computing & Applied Sciences



Scott Swain

Professor, Marketing
College of Business

» Researcher of the Year

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Junior Faculty Nominees



Kaileigh Byrne

Assitant Professor, Psychology
College of Behavioral, Social & Health Sciences



Andreea Mihalache

Assitant Professor, Architecture
College of Architecture, Arts & Humanities



Matt Hersel

Assistant Professor, Management
College of Business



Luke Rapa

Assitant Professor, Education & Human Development
College of Education



Nathan McNeese

Assitant Professor, School of Computing
College of Engineering, Computing & Applied Sciences



Vidya Suseela

Assistant Professor, Plant & Environmental Sciences
College of Agriculture, Forestry & Life Sciences

» Research Symposium

The annual Research Symposium brings together faculty members from all disciplines to share research ideas and form collaborative teams. The event also includes the announcement of the Researcher of the Year and the University Research, Scholarship and Artistic Achievement Awards. The 2022 Research Symposium will be May 10th at the Watt Family Innovation Center.





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