






RESEARCH

Quarterly Research Report

April 2025

Tanju Karanfil

Senior Vice President for Research,

Scholarship and Creative Endeavors

From the Senior Vice President for Research, Scholarship and Creative Endeavors

No. 1 Student Experience: The Impact of Research

Universities across the country face rapidly shifting federal policies that require close monitoring and careful planning. As of now, we continue to submit proposals per agency guidelines and continue our work on federally sponsored research per normal operating procedures. All communications from federal agencies related to sponsored projects are routed through the Grants and Contracts Administration for appropriate review and response on a case-by-case basis. Additionally, my office continues to work closely with our colleagues in Governmental Affairs to express the value and importance of research activity occurring at Clemson.

The value of research is of particular importance to our efforts to provide the No. 1 student experience. At the beginning of 2025, Clemson had 2,048 active research projects with a total budget amount of more than $823 million. This is a diverse portfolio of investments from numerous agencies (National Science Foundation, National Institutes of Health, U.S. Department of Energy, U.S. Department of Agriculture, U.S. Army, and others). These projects are essential to graduate education. We currently have 5,676 students enrolled in graduate school. And, from December 2023 to August 2024, Clemson awarded 324 doctoral degrees, up significantly from 187 in 2013. These graduates leave Clemson ready to lead innovation, scientific discovery and economic prosperity into the future.

Research is a staple of undergraduate education at Clemson, as well. In fact, Clemson offers unmatched opportunities for experiential learning. Consider, about 4,500 undergraduate students participate in Creative Inquiry (CI) research projects every year. This is a unique program at Clemson, one that creates invaluable opportunities that set up students for future success.

> “I feel like (presenting research) is not an experience many people get because it’s not something every school has.
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> Clemson student discussing undergraduate research opportunities at Clemson.

Grayce Robinson, who graduates this year, has participated in numerous CI projects and says the opportunity for undergraduate students to present their own independent research is one of the best things about Clemson and was one of her proudest moments as a student.

Pages 13-17 provide numerous examples of Clemson undergraduate and graduate students, like Grayce, finding success through experiential learning and research at Clemson.

Clemson University faculty continue to rack up honors, as well. They are earning exlusive fellowships in recognition of their contributions to their fields. They are winning national competitions and career awards. They are being elected to executive committees of national leadership organizations. They are positioning themselves as leaders in their fields and signaling Clemson as a great place to build a research career and make a substantial impact through research, scholarship and creative endeavors. Pages 18-20 provide examples of faculty honors and awards.

Our researchers, meanwhile, continue to pursue more research. This report includes research metrics for the second quarter ending Dec. 31, 2025, of fiscal year 2025, the latest quarter for which data was available at the publication of this report. Here are a few highlights:

From the Senior Vice President for Research, Scholarship and Creative Endeavors

- Competitive expenditures were $98.7 million through the second quarter of fiscal year 2025 (pages 6-7).
- Proposal submissions were $411.6 million through the second quarter of FY2025 (page 8).
- Research awards through the second quarter of FY2025 were $112.5 million (page 9).

Additionally, we continued to earn high-value awards, which are important to our growth aspirations outlined in Clemson Elevate. Our research portfolio is a healthy, diverse mix of investments from numerous agenices, and that is reflective in the top awards highlighted on pages 10-11. The report includes grants from the National Institutes of Health, the U.S. Department of Agriculture, the U.S. Department of Education, the U.S. Economic Development Administration, the U.S. Department of Energy, the U.S. Department of Defense and the Centers for Disease Control and Prevention. Clemson researchers are delivering on these investments and working across numerous sectors to improve quality of life in South Carolina and beyond.

Since 2015, Clemson has received **131 awards** valued at or above $2M, bringing a combined **$773M** to the university.

Great news is plentiful at Clemson University. I am proud of the work our faculty and students are doing through their research, scholarship and creative endeavors. To provide examples of the breadth of scholarship happening at Clemson, I have included a brief profile of one faculty member from each college on pages 21-29. This quarterly report specifically highlights junior faculty members, the rising stars at Clemson and across the country. I am excited to see that we have many aspiring young faculty members chasing big ideas and achieving their goals at Clemson.

It truly is a great time to be a Clemson Tiger!

Sincerely,

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

Senior Vice President for Research, Scholarship and Creative Endeavors

Clemson University

NOTE: Click the tabs at the top of each page to navigate to the executive summaries at the beginning of each section. Underlined text in Clemson orange links directly to pages within this document or to additional information posted online.

RESEARCH

RESEARCH METRICS

This section covers institutional research productivity with data on proposal submissions, awards and expenditures. The latest data available at time of publication was through the second quarter ending Dec. 31, 2024, for fiscal year 2025.

Executive Summary

- Total R&D expenditures at Clemson surpassed $300 million at Clemson for the first time in fiscal year 2024, reaching $338 million (page 5).
- Competitive expenditures were $98.7 million through the second quarter of fiscal year 2025. Details on expenditures by business unit, innovation cluster, funding source and per tenure/tenure-track faculty member are included on pages 6-7.
- Proposal submissions were $411.6 million through the second quarter of FY2025. Details on proposals per college, along with targets for FY2025, are on page 8.
- Research awards through the second quarter of FY2025 were $112.5 million. Details on awards per college are on page 9.
- Clemson faculty remain successful earning high-value awards. A selection of large grants received in the second quarter are on pages 10-11.

The tables on the following pages provide details on proposal submissions, awards and expenditures per college/unit. Abbreviations used in the tables are listed below.

CAAC: College of Architecture, Art & Construction

CAH: College of 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

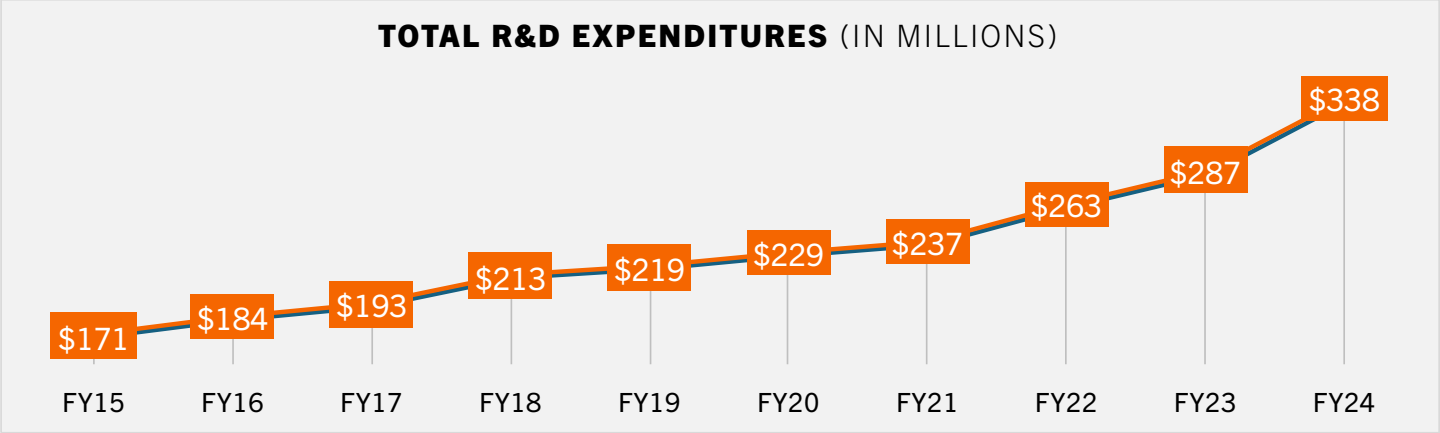
COB: Wilbur O. and Ann Powers College of Business

COS: College of Science

Total R&D Expenditures

Clemson's total R&D expenditures reached $338 million in FY2024, as shown in the graph below. This data includes expenditures on all research revenue, including state support, gifts, external research services, competitive awards and other sources, as reported to the National Science Foundation Higher Education Research and Development (HERD) Survey.

The table below shows various outputs (Ph.D. productivity, licensing revenue, patents, etc.) and the size of the workforce supporting research activity at Clemson. Data for FY2025 2nd quarter ending Dec. 31, 2024, is the latest available.



	2021	2022	2023	2024	2025 2nd Quarter
NIH R01-Equivalent Awards	3	1	6	2	1
Doctorates Awarded	225	242	285	310	197
STEM Doctorates Awarded	159	172	190	197	147
Disclosures	44	50	61	76	25
Patents	15	33	11	13	24
Licenses/Options	13	27	16	20	1
Licensing Revenue	$239,074	$380,286	$392,162	$387,274	$121,389
Start-up Companies (based on licenses/options)	1	4	4	7	1
Supporting Workforce					
Graduate Student Enrollment	5,538	5,448	6,401	5,872	5,676
Sponsored Graduate Research Assistants	546	729	926	1,049	857
Postdoctoral Fellows	106	117	112	141	131
Research Faculty: Permanent 100% Non-E&G Funded	12	2	5	4	4
Research Faculty: Temporary 100% Non-E&G Funded	45	32	28	36	46

Competitive Expenditures (2nd Quarter FY25)

Competitive expenditures were $98.7 million through the second quarter of fiscal year 2025, the latest quarter for which data is available. Competitive expenditures include funds only from competitively bid projects, such as federal grant awards.

Additional details on expenditures by business unit, innovation cluster, funding source and per tenure/tenure-track faculty member are included in the table on the next two pages.

The line graph on the following page compares competitive expenditure data for the second quarter of each of the past 10 fiscal years in orange and for year end in gray.

Research Expenditures (millions)	2021	2022	2023	2024	2025 2nd Quarter
By Business Unit	$114.4	$141.4	$160.3	$198.5	$98.7
CAAC	$1.0	$1.1	$1.3	$1.8	$0.8
CAH	$0.1	$0.2	$0.6	$1.0	$0.5
CAFLS	$20.5	$25.0	$29.7	$40.7	$19.7
COB	$0.7	$0.7	$1.0	$1.4	$0.7
CECAS	$54.4	$71.7	$76.0	$88.6	$43.2
CBSHS	$9.0	$12.0	$16.7	$21.1	$12.5
COE	$2.3	$3.8	$5.6	$6.6	$3.6
COS	$15.9	$18.5	$23.1	$28.0	$13.5
VP for Res & Interdisc Inst	$9.6	$7.0	$6.2	$7.6	$3.2
All Other	$0.8	$1.5	$1.6	$1.8	$1.1
By Innovation Cluster	$114.4	$141.4	$160.3	$198.5	$98.7
Advanced Materials	$14.3	$18.6	$21.1	$23.6	$10.9
Cyberinfrastructure & Big Data Science	$5.5	$8.2	$7.7	$8.6	$4.1
Energy, Trans. & Advanced Manufacturing	$19.9	$27.7	$29.5	$32.0	$15.8
Health Innovation	$27.1	$26.3	$30.5	$38.7	$20.6
Human Resilience	$12.7	$14.8	$19.1	$24.2	$11.7
Sustainable Environments	$21.3	$26.8	$33.7	$49.7	$25.5
Other	$13.6	$19.6	$20.2	$21.7	$10.2

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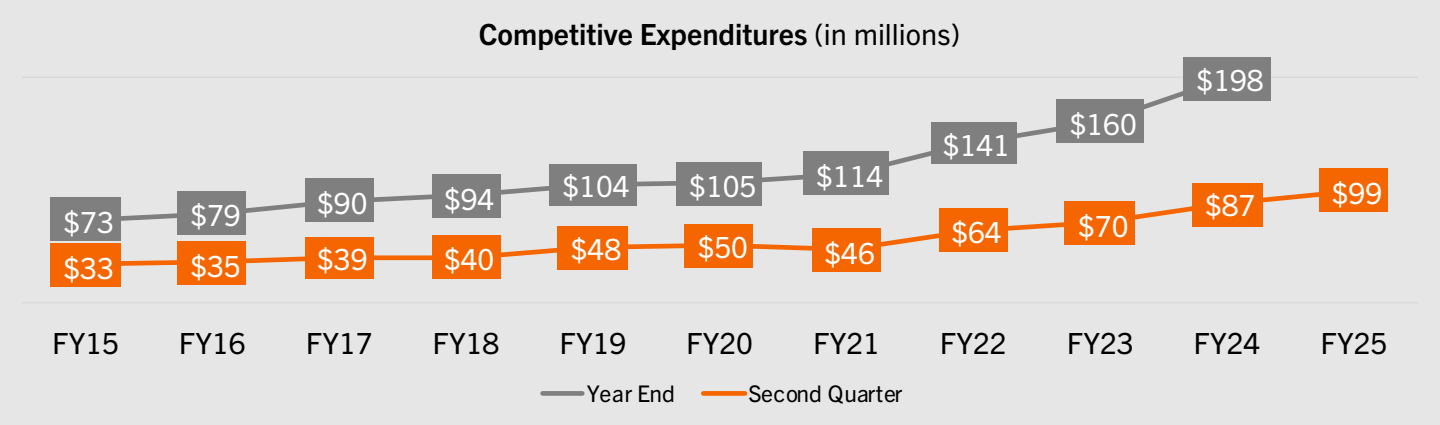
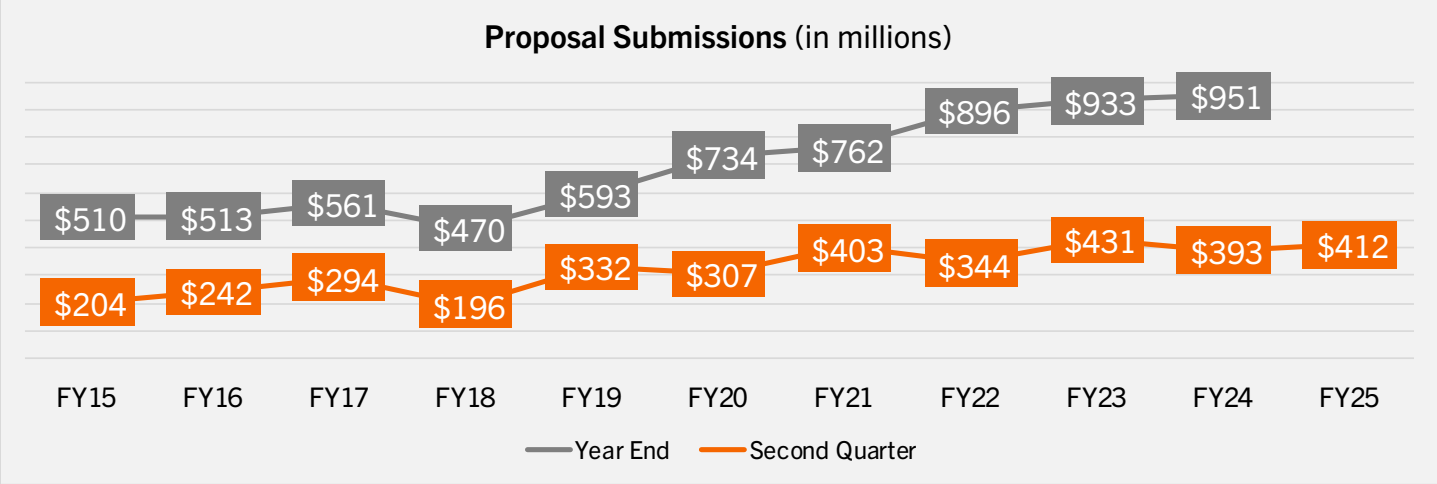
Competitive Expenditures (2nd Quarter FY25)



Research Expenditures (millions)	2021	2022	2023	2024	2025 2nd Quarter
By Funding Source	$114.4	$141.4	$160.3	$198.5	$98.7
Federal Government	$95.1	$125.1	$141.0	$175.0	$87.0
Foundations, Societies and Associations	$6.2	$4.6	$5.4	$6.6	$3.3
Industry/Other	$4.8	$4.8	$5.9	$5.2	$2.4
International	$0.4	$0.5	$0.5	$0.6	$0.3
Local Government	$0.8	$0.9	$0.7	$0.6	$0.3
State Government	$7.3	$6.2	$8.2	$10.4	$5.4
Per T/TT Faculty Member					
CAAC	$18,195	$21,321	$26,231	$35,020	$15,681
CAH	$1,113	$1,864	$5,507	$10,135	$4,353
CAFLS	$131,195	$196,657	$231,788	$301,646	$143,924
COB	$7,132	$6,787	$9,865	$14,564	$7,045
CECAS	$223,843	$296,203	$310,088	$358,535	$173,489
CBSHS	$67,202	$90,220	$121,581	$149,294	$82,690
COE	$48,805	$80,058	$121,114	$124,266	$64,520
COS	$107,258	$120,778	$146,445	$177,322	$84,020
Clemson average (Total exp/Total T/TT faculty)	**$103,187**	**$142,129**	**$159,792**	**$196,501**	**$94,377**

Proposal Submissions (2nd Quarter FY25)

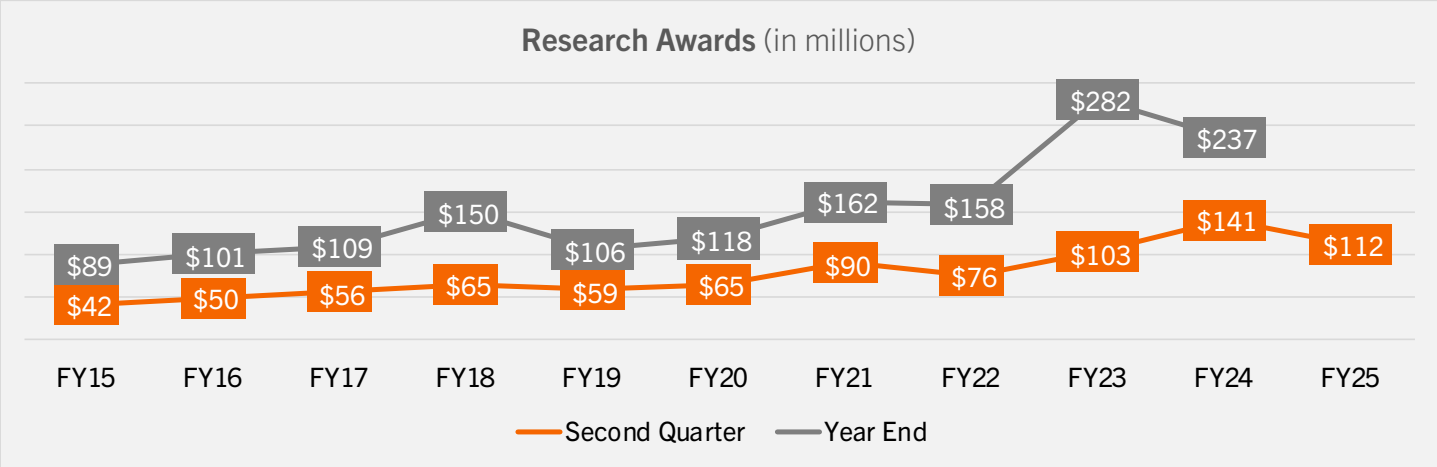
Proposal submissions were $411.6 million through the second quarter of FY2025. The line graph shows second quarter data for each year in orange, along with year-end data in gray.



Proposal Submissions	2021	2022	2023	2024	2025 2nd Quarter	
By Count	1,581	1,492	1,680	1,728	716	
CAAC	49	24	20	18	13	
CAH	12	11	7	12	5	
CAFLS	426	392	451	455	200	
CBSHS	150	151	183	179	63	
CECAS	596	631	684	701	269	
COE	37	43	45	49	46	
COB	14	9	11	11	3	
COS	229	193	259	262	100	
VP for Res & Interdisc Inst	29	23	11	13	10	
All Other	39	15	9	28	7	
By Value (millions)	$762	$896	$933	$951	$411.6	FY2025 Targets
CAAC	$3.8	$6.5	$10.4	$8.6	$5.0	**$11.47**
CAH	$1.7	$1.7	$3.0	$1.5	$0.5	**$3.32**
CAFLS	$89.7	$249.9	$149.6	$188.9	$74.7	**$164.97**
CBSHS	$64.3	$73.1	$106.5	$116.4	$31.2	**$117.39**
CECAS	$342.9	$380.8	$426.0	$429.8	$183.1	**$469.62**
COE	$22.4	$32.3	$34.4	$34.0	$38.3	**$37.91**
COB	$4.2	$4.8	$6.3	$3.1	$2.6	**$6.9**
COS	$175.4	$127.3	$169.8	$125.5	$70.6	**$187.17**
VP for Res & Interdisc Inst	$22.3	$11.0	$6.7	$5.7	$1.4	
All Other	$35.7	$8.9	$20.3	$36.9	$4.2	

Research Awards (2nd Quarter FY25)

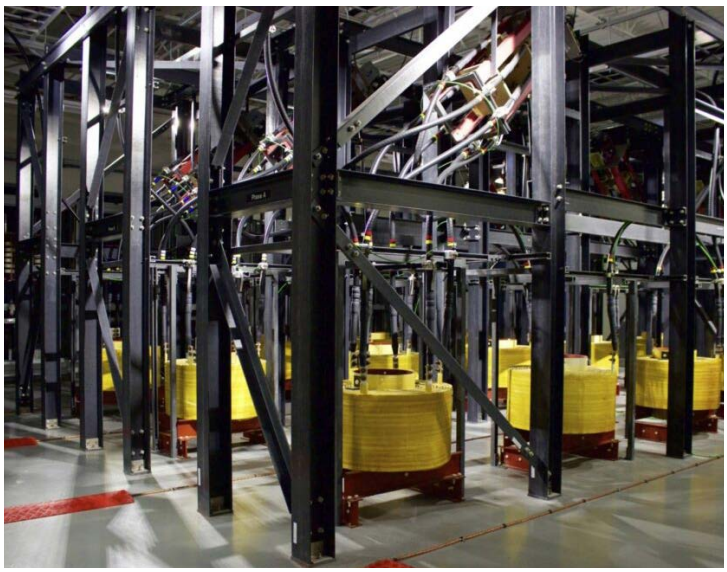
Research awards through the second quarter of FY2025 were $112.5 million. The line graph below shows second quarter data for each year in orange, along with year-end data in gray. Awards in FY2023 were elevated by the largest single federal award Clemson has ever received, a $70 million grant from USDA. The table provides details on awards per college and young investigator awards received.



Research Awards	2021	2022	2023	2024	2025 2nd Quater
By College/Unit (millions)	$162.2	$157.6	$282.0	$237.3	$112.5
CAAC	$1.0	$0.4	$3.4	$1.5	$1.0
CAH	$0.4	$0.8	$2.1	$0.7	$0.4
CAFLS	$29.9	$26.9	$107.4	$37.4	$28.8
CBSHS	$17.4	$13.7	$21.0	$27.8	$7.5
CECAS	$75.0	$76.4	$102.8	$109.4	$47.3
COE	$5.1	$5.7	$10.1	$4.9	$3.3
COB	$0.2	$0.9	$1.1	$1.1	$0.7
COS	$25.4	$17.8	$24.4	$34.0	$10.7
VP for Res & Interdisc Inst	$5.1	$6.6	$7.1	$7.0	$3.6
All Other	$2.6	$8.3	$2.6	13.5	$9.2
Young Investigator Awards	9	5	8	10	3
NSF CAREER	8	4	6	10	2
NIH KO1	-	-	-	-	1
Air Force Young Investigator	-	-	1	-	-
Army Young Investigator	-	-	-	-	-
DARPA Young Investigator	-	-	-	-	-
EPA Early Career	-	-	-	-	-
DOE Early Career	1	1	-	-	-
Arnold & Mabel Beckman Foundation	-	-	1	-	-
Dept. of Education Inst. of Educational Sciences	-	-	-	-	-

Top Competitive Awards (Second Quarter of FY2025)

Clemson received $12.5 million from the U.S. Economic Development Administration as part of the agency's investment in the statewide SC Nexus collaboration, of which Clemson is a core member. The grant will fund an expansion of the eGRID electrical grid simulator at the Dominion Energy Innovation Center in the Lowcountry, making it one of the premiere facilities for the rapid testing and deployment of new energy technologies. This will make Clemson even more competitive for federal funding and industry collaboration focused on energy innovation and workforce development. The project is led by provost's distinguished professor Sez Atamturktur Russcher.



The U.S. Department of Education awarded the Clemson College of Education $6 million to expand an already successful collaboration with Charleston County School District. The research team will use funds to pair recruited novice teachers with highly effective, experienced mentor teachers in a one-year paid co-teaching apprenticeship and for various supports throughout the project. The project is led by Laura Eicher, director of Clemson's teacher residency and strategic initiatives.

Clemson received $5.5 million from the National Institutes of Health (NIH) via the University of Alabama Birmingham to support work on adaptive clinical trials of cognitive training to improve function and delay dementia. The project is led by Lesley Ross, director of the Institute for Engaged Aging (IEA). Located at the Prisma Health Oconee Medical Center, IEA leads research on brain, mobility, technology and health and well- being to help older adults retain independence and the ability to stay fully engaged in life.

The U.S. Department of Agriculture awarded Clemson $4.9 million to support the Building Partnerships for Climate-Smart Commodities in South Carolina project. A collaboration with South Carolina State University, the project works with growers to institute climate-tolerate growing practices to increase agricultural productivity, particularly among vegetables, peanuts, beef cattle and forest products. The project is led by Paula Agudelo, associate dean for research and Experiment Station director in the College of Agriculture, Forestry and Life Sciences.

The U.S. Department of Energy invested $4.9 million in a Clemson project that aims to accelerate discovery, design and laser convergent manufacturing of low-temperature solid oxide electrolytic cells (SOECs). Those cells are key components of electrolyzers, the devices that create and store hydrogen. The impact has the potential to be far reaching. Hydrogen is used in products ranging from fertilizer to steel and is seen as a promising fuel of the future for vehicles, including cars, buses and airplanes. The project is led by Fei Peng, a professor of materials science and engineering.

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Top Competitive Awards (Second Quarter of FY2025)

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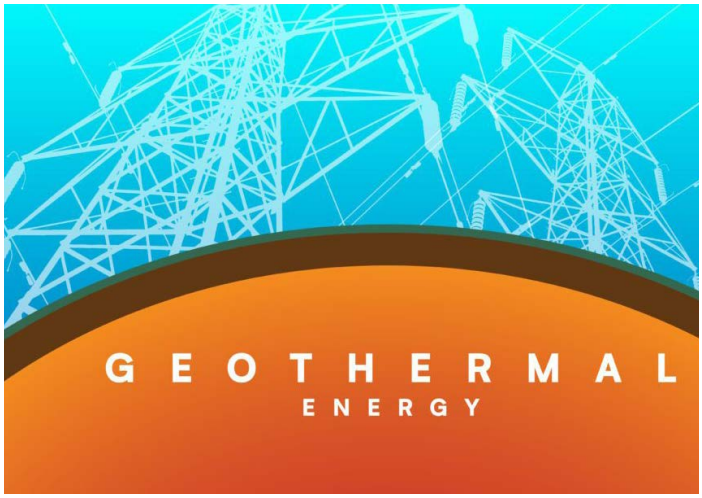
The U.S. Department of Energy also invested $4.6 million in Clemson research to unlock the potential of heat from underground geothermal wells to produce renewable energy. Clemson researchers are combining several advanced technologies to create a system that would evaluate the integrity of geothermal wells that run deep below the Earth's surface. The wells tap into the planet's natural heat to generate steam that turns turbines, producing electricity. The project is led by Hai Xiao, the Milton W. and Betty Holcombe Chair in Electrical and Computer Engineering and chair of the Holcombe Department of Electrical and Computer Engineering.



Clemson received $3.2 million from the U.S. Department of Defense via Applied Research Associates Inc. For the project, Clemson will support the company's effort to design, build and test a rugged off-road autonomous robot to clear minefields. Clemson will contribute advanced research on hybrid architectures, autonomous systems, and cooperative robotics tailored for platform-specific applications. Clemson's work on the project is led by Robert Prucka, the Alan Kulwicki professor of motorsports engineering.

The Centers for Disease Control and Prevention awarded Clemson $2.8 million to support disease detection, surveillance and forecasting research at Clemson. The project supplements the Disease Modeling and Analytics to Inform Outbreak Preparedness, Response, Intervention, Mitigation and Elimination in South Carolina (DMA-PRIME) initiative at Clemson. DMA-Prime utilizes data-driven approaches to conduct infectious disease forecasting, design decision-support toolkits and enhance methods of communication to public health organizations and decision makers. The project is led by Lior Rennert, associate dean for health science.

NIH awarded Clemson $2.7 million to support the design of novel cancer therapies that are less susceptible to "drug resistance," which occurs when a cells or microorganisms are no longer weakened or killed by certain drugs. The project will initially focus on glioblastoma multiforme (GBM), a brain tumor with poor survival rates and few treatment options. The project is led by Marc Birtwistle, professor of chemical and biomolecular engineering.

The U.S. Department of Agriculture invested $2.1 million in the South Carolina Meat-Poultry Inspection Department. The S.C. Meat-Poultry Inspection Department led by James Hollis is housed with Clemson University Livestock Poultry Health and serves by establishment of the S.C. Legislature to protect the health of consumers by providing a comprehensive inspection service to assure that meat and poultry products are safe, wholesome and accurately labeled.

RESEARCH

RESEARCH NEWS

This section highlights research news from across the university.

Executive Summary

- Research is a staple of all-levels of education at Clemson and an important contributor to the Clemson Elevate goal to provide the No. 1 Student Experience. Pages 13-17 provide numerous examples of Clemson undergraduate and graduate students finding success through experiential learning and research at Clemson.
- Clemson University faculty continue to rack up honors, as well. They are earning exclusive fellowships in recognition of their contributions to their fields. They are winning national competitions and career awards. They are being elected to executive committees of national leadership organizations. They are positioning themselves as leaders in their fields and signaling Clemson as a great place to build a research career and make a substantial impact through research, scholarship and creative endeavors. Pages 18-20 provides examples of faculty honors and awards.
- Clemson University has named the nominees for 2025 Researcher of the Year. Each college nominates one senior faculty member and one junior faculty member who received their terminal degree within the past 10 years. Nominations are reviewed by an interdisciplinary committee, and winners will be announced by President Clements at the annual Research Symposium on May 7, 2025, at the Watt Family Innovation Center. Meet the nominees for 2025 Clemson University Researcher of the Year on page 20.

No. 1 Student Experience: Research Impact

Research is a staple of all-levels of education at Clemson. Currently, 5,676 students are enrolled in graduate school. And, from December 2023 to August 2024, Clemson awarded 324 doctoral degrees, up significantly from 187 in 2013. These students are participating in the nearly 2,000 active research projects at Clemson. Additionally, about 4,500 undergraduate students participate in Creative Inquiry (CI) research projects every year. This is a unique program at Clemson, one that creates invaluable opportunities that set up students for future success.

Grayce Robinson, who graduates this year, has participated in numerous CI projects focused on ecology, culminating in one her senior year studying the effects of fungal bacteria on frogs and fish in the Clemson Experimental Forest. The project was her idea, and CI gave her an opportunity to see it through. Robinson says the opportunity for undergraduate students to present their own independent research is one of the best things about Clemson and was one of her proudest moments as a student.

> "I feel like that's not an experience many people get because it's not something every school has.
>
> - **Grayce Robinson**
>
> Clemson student discussing undergraduate research opportunities at Clemson.

"I feel like that's not an experience many people get because it's not something every school has," said Robinson, who hopes to attend veterinary school and work in veterinary medicine.

The section includes numerous examples of Clemson undergraduate and graduate students, like Grayce, finding success through experiential learning and research at Clemson.

Gatch wins Churchill Scholarship

For the third year in a row, a Clemson University student has won a Churchill Scholarship, widely seen as the most prestigious and competitive international science, mathematics and engineering award for post-undergraduate researchers.

Adam Gatch (pictured at right), a biochemistry Honors student from Charleston, South Carolina, was one of only 16 students nationwide to receive the award, which covers one year of master's study at the University of Cambridge.

Gatch's achievement makes Clemson the only university whose students have been awarded a Churchill Scholarship in each of the last three years.

Gatch plans to pursue a Master of Philosophy in chemistry and work with Professor Tuomas Knowles at the Centre for Misfolding Diseases, a leading research center dedicated to understanding the abnormal behavior of proteins in the brain in neurodegenerative disorders, such as Alzheimer's and Parkinson's disease.

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No. 1 Student Experience: Research Impact

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Bailey named Truman Scholarship finalist

Clemson University Honors student Helen Bailey (pictured at right) was named a finalist for the Truman Scholarship, the premier scholarship for aspiring public service leaders in the United States.

Bailey, an environmental and natural resources major, was one of 201 finalists from 137 colleges and universities nationwide.

The scholarship, named in honor of the late U.S. President Harry S. Truman, provides up to $30,000 for graduate study and leadership training. It recognizes high-achieving college students who demonstrate a commitment to leadership, public service and the potential to continue that service beyond graduation.

Gambrell to spend summer in Florida Keys and South Africa

Undergraduate research through Clemson's unique Creative Inquiry program has opened doors to incredible experiences for Ashley Gambrell (pictured at right). This summer, she'll be in the Florida Keys researching heatwave impacts on marine herbivores, a project she developed herself.

This will be the second time she's been to the Florida Keys for CI research. She also went there as part of a previous CI project to research the conservation of marine resources.

This summer, She's also signed up for a study abroad program in South Africa, where she'll help research mammalian ecology for two and a half weeks at the end of the summer.

"I want to do adventurous things and go out of my comfort zone," she says. "Once I experienced research in CI and all these things that Clemson has to offer, I was like, why not enjoy these years?"

Growing up in a family of University of South Carolina fans, Gambrell is on track to add a little Clemson orange to her family in May, when she'll graduate with a bachelor's degree in biological science with a minor in chemistry. Her dream is to become a marine ecology professor.

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No. 1 Student Experience: Research Impact

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Undergraduate wins best graduate paper award

Clemson student Jessi Smith (pictured at left) was awarded the Best Graduate Student Paper at the Society for Ethics Across the Curriculum (SEAC) conference, despite being an undergrad.

The Society for Ethics Across the Curriculum is a US-based non-profit with a mission to stimulate scholarship on ethics and the teaching of ethics in all academic disciplines. Clemson hosted the national 2024 SEAC conference with the society-appointed theme "Nurturing Democratic Responsibility in the Age of Artificial Intelligence (AI)".

Coincidently, just a few months before the conference came to Clemson, Smith—a senior philosophy major—finished and defended her honors philosophy thesis on the ways that AI can provide epistemic testimony.

"In the most non-complicated terms possible," she explained, "testimony refers to the instances where we form a belief, on the basis of what others have told us."

Her paper centered on AI's ability to be a reliable source for factual information.

Melo serves as media expert on labor economics

Vitor Melo is much more than a Ph.D. student in the Wilbur O. and Ann Powers College of Business. He's also a sought-after expert on labor economics, health economics and public policy.

Melo (pictured at right) examines how regulations and economic policies influence markets and individual decision-making, with an emphasis on empirical analysis and causal inference. One of his key research areas explores the effects of healthcare regulations, including Certificate-of-Need laws and nursing home policies, on access to care and patient outcomes.

His work frequently garners attention from major news agencies. Melo recently published an op-ed discussing one of his latest National Bureau of Economic working papers on the impact of increasing the minimum wage, which Melo and his co-author find, perhaps surprising, reduces the number of people looking for jobs. Newspapers in Los Angeles, Miami and other markets have picked up the piece.

Melo has already authored six published papers with five more being submitted. Additionally, his research has been featured in Reason Magazine, The Philadelphia Inquirer, Fox News, Marginal Revolution, The Daily Wire and The Hill to name a few.

Scott Baier, associate dean of research in the Wilbur O. and Ann Powers College of Business, calls Melo "arguably one of the most productive and prolific graduate student researchers to come through the College of Business in the last 40 years."

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No. 1 Student Experience: Research Impact

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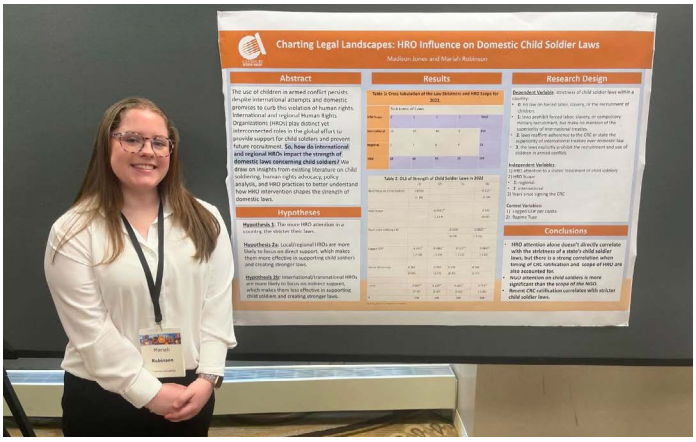
Robinson presents at ACC 'Meeting of the Minds'



Mariah Robinson (pictured at right) is one of several Clemson students selected to participate in the ACC Meeting of the Minds this spring. She will be presenting her research on the effectiveness of human rights organizations' naming and shaming of countries who experience the use of child soldiers. This includes a novel dataset that Mariah designed and coded.

She originally presented this project at the Midwest Political Science Association's Annual Meeting undergraduate poster session last spring. This is one of the top three political science professional conferences. Robinson is presenting a second project to MPSA this spring that builds on last year's findings by looking at the effect of economic sanctions on those countries.

Clemson win second championship in construction science

A student team notched Clemson's second consecutive championship at the Associated Builders and Contractors' (ABC) annual Construction Science and Management Competition. This is Clemson's third first-place finish in the competition in the past five years. The team is pictured at left with assistant professor Vivek Sharma (middle) of the Nieri Department of Construction and Real Estate Development.

They are one of three teams from the department to claim top-four finishes in construction science and management competitions in 2025.

A team of students coached by associate professor and interim chair Dhaval Gajjar claimed third place in the Roofing Alliance Student Competition, and a team coached by associate professor Jason Lucas took fourth place in the National Association of Home Builders Custom Home Competition.

Clemson's win at the ABC Construction Management competition is not only their second championship in a row but also the third in five years.

continued on next page

No. 1 Student Experience: Research Impact

continued from previous page

Champions of quantum computing

Clemson University students are proving themselves to be leaders in the future of quantum computing.

They dominated, for example, the first-ever SC Quantathon by winning every category — including the grand prize, a trip to an international competition in Abu Dhabi.

Just a few months later, they showcased their talent on a national stage at the Massachusetts Institute of Technology's iQuHACK, where multiple Clemson students placed in top spots.

Groups of about 20 students traveled to each hackathon.

Clemson students are growing their knowledge and competitive in quantum computing through a newly established club, the Clemson Quantum Club. They see quantum computing as an emerging field ripe with opportunity – a way to unravel mysteries of the universe, super-charge artificial intelligence and solve what would otherwise seem unsolvable.

Evans earns humanitarian award

Jadarius "JD" Evans (pictured at left), a graduate student in the Counselor Education program at Clemson, has been awarded the South Carolina Counseling Association (SCCA) Humanitarian Award for his contributions to the counseling profession, academic excellence and a commitment to advocacy and service.

Beyond his academic achievements, he has gained extensive hands-on experience through many internships where he has provided counseling, facilitated group therapy and worked with survivors of domestic violence and sexual assault. Evans is on track to graduate this May with a master's in Clinical Mental Health Counseling. He plans to pursue a Ph.D. in Counselor Education and Supervision to become an educator and supervisor.

Three students receive Goldwater Scholarships

Goldwater Scholarships, among the most prestigious national honors for undergraduates in STEM fields, are going to three students in Clemson University's College of Engineering, Computing and Applied Sciences.

The recipients (pictured from left to right) are: Nyx Mashkow, a junior majoring in materials science and engineering; Ashton McEntarffer, a sophomore majoring in computer science; and Regan O'Neill, a junior majoring in mechanical engineering.

The Goldwater Scholarship is a national award that goes to students in engineering, science and math, providing support on their path to becoming professional researchers. All of this year's Clemson honorees plan to pursue doctorates after completing undergraduate studies.

Faculty Honors and Awards

Tran Dominy named Kavli Fellow by National Academy

Thao Tran Dominy (pictured at left in photo), an assistant professor in the Clemson University Department of Chemistry, has been named a 2025 Kavli Fellow by the National Academy of Sciences (NAS).

A NAS committee selects Kavli Fellows from among early career scientists who have already made recognized contributions to science, including recipients of major fellowships and awards.

Tran Dominy was among 88 scientists from industry, academia and government chosen this year. She was honored at the Kavli Frontiers of Science symposia held at the Arnold and Mabel Beckman Center of the National Academies of Sciences and Engineering in Irvine, California, March 6-8.

More than 6,800 scientists have attended the Frontiers of Science symposia since their inception in 1989. Three hundred fifty-four have later been elected to the NAS and 20 have received the Nobel Prize.

Anderson elected Fellow in national association

Denise Anderson (pictured at right), associate dean for undergraduate studies, faculty success and well-being in the College of Behavioral, Social and Health Sciences (CBSHS) and faculty member in the Department of Parks, Recreation and Tourism Management (PRTM), was inducted as a Fellow of The Academy of Leisure Sciences (TALS) in recognition of her career contributions to the field of leisure sciences and excellence in research, teaching and service.

TALS is an international organization committed to the intellectual advancement of leisure sciences. The Academy represents several disciplines, including recreation, tourism, hospitality, sports and outdoor education – and Fellowships are awarded to individuals who have demonstrated outstanding performance and leadership in the field of leisure.

Means elected to national executive committee

Darris Means (pictured at right), the Clemson University College of Education's inaugural dean's fellow for rural education, was elected in 2025 by the National Rural Education Association (NREA) as president-elect designate.

The five-year term will see Means go on to serve as president-elect, president, immediate past-president, and past-president, all roles that put him on the NREA's executive committee. In the role, Means will work with the rest of the executive committee, the executive board and the organization's executive director to develop and implement strategies to support and elevate rural education across the U.S.

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Faculty Honors and Awards

continued from previous page

Clemson design team takes national award

Clemson University's Center for Health Facilities Design and Testing (CHFDT) has received a Touchstone Award in the Silver Category from the Center for Health Design (CHD) for their research and evaluation work with Indiana University Health (IU Health).

The CHFDT received the Silver Touchstone Award at the American Society for Health Care Engineering (ASHE) Planning Design and Construction (PDC) Summit in Atlanta on March 11. The award will be presented to the Director of the CHFDT, Anjali Joseph and Christi Cornelius from IU Health, for their collaborative work on designing a patient room prototype for IU Health's new replacement hospital in downtown Indianapolis. The team is led by Anjali Joseph (pictured at the far right of the photo above).

Flowers named to NSF Directorate

Lamont A. Flowers, Distinguished Professor of Educational Leadership and the Charles H. Houston Center executive director, has been appointed to the National Science Foundation (NSF) Directorate for STEM Education Advisory Committee.

The NSF Directorate for STEM Education funds research and scholarship to advance student learning in STEM. As a member of the directorate's advisory committee, Flowers will analyze data, information and issues pertaining to NSF's Directorate for STEM Education and provide recommendations about current and future plans, policies and programs.

Hirsch receives Early Career Research Award

Shanna Hirsch, associate professor of special education, received the 2025 Martin J. Kaufman Early Career Research Award from the Council for Exceptional Children, Division for Research (CEC-DR).

The award is presented to "individuals who have made outstanding scientific contributions in special education, in basic and/or applied research, within the first 10 years following receipt of the doctoral degree."

The CEC-DR is devoted to the advancement of research related to the education of individuals with disabilities and/or who are gifted.

Hirsch conducts research related to special education with a focus on emotional behavioral disorders. She helps to identify effective instructional methods for classroom management and functional-assessment based interventions and works to create effective and sustainable university-district research-practice partnerships.

Researcher of the Year 2025 Nominees

The Researcher of the Year awards recognize the efforts of high-achieving faculty whose work is improving society through the generation and dissemination of new knowledge. Each college nominates one senior faculty member and one junior faculty member who received their terminal degree within the past 10 years. Nominations are reviewed by an interdisciplinary committee, and winners will be announced by President Clements at the annual Research Symposium on May 7, 2025, at the Watt Family Innovation Center. Meet the nominees for 2025 Clemson University Researcher of the Year.

JUNIOR FACULTY NOMINEES

Kristen Duncan
Assistant Professor
College of Education

Casey Hopkins
Assistant Professor
College of Behavioral, Social and Health Sciences

Matthew Koski
Assistant Professor
College of Science

Shunyu Liu
Assistant Professor
College of Engineering, Computing and Applied Sciences

Jiahui Mo
Assistant Professor
Wilbur O. and Ann Powers College of Business

Sruthi Narayanan
Associate Professor
College of Agriculture, Forestry and Life Sciences

Vivek Sharma
Assistant Professor
College of Architecture, Art and Construction

John Thames
Assistant Professor
College of Arts and Humanities

SENIOR FACULTY NOMINEES

Jody Cripps
Associate Professor
College of Arts and Humanities

Adam Hoover
Associate Department Chair
College of Engineering, Computing and Applied Sciences

Anjali Joseph
Spartanburg Regional Health System Endowed Chair
College of Architecture, Art and Construction

William Kettinger
William S. Lee Distinguished Professor
Wilbur O. and Ann Powers College of Business

Darris Means
Professor
College of Education

Sourav Saha
Professor
College of Science

Guido Schnabel
Professor
College of Agriculture, Forestry and Life Sciences

Heidi Zinzow
Professor
College of Behavioral, Social and Health Sciences

RESEARCH

FOCUS ON FACULTY

This section highlights junior faculty members at Clemson University. Each College submitted a profile of one faculty member.

Executive Summary

- Each college provided a brief introduction to a select junior faculty member. Click the links below to read about faculty from the respective college.
  - » College of Agriculture, Forestry and Life Sciences
  - » College of Architecture, Art and Construction
  - » College of Arts and Humanities
  - » College of Behavioral, Social and Health Sciences
  - » Wilbur O. and Ann Powers College of Business
  - » College of Education
  - » College of Engineering, Computing and Applied Sciences
  - » College of Science

College of
AGRICULTURE, FORESTRY
AND LIFE SCIENCES

Bhupinder S. Jatana, Ph.D.

Assistant Professor

Plant and Environmental Sciences

Jatana joined Clemson University in January 2023 with 50 percent appointments in both research and extension at the Edisto Research and Education Center. Prior to Clemson, Jatana completed his postdoctoral at Cornell University. He received his bachelor of science in Agriculture from Punjabi University Patiala, India, his master of science in agronomy from Punjab Agricultural University, Ludhiana, India, and his Ph.D. in plant and environmental science from Clemson University.

His interdisciplinary research centers around leveraging available natural resources and cover-cropping practices for resilient vegetable production systems that can withstand environmental stressors such as drought, heavy rain and temperature fluctuations and foster weed and soil-borne pest suppression, allowing consistent crop production, and optimizing management practices for grafted nursery for higher resource use efficiency and economic sustainability.

Jatana has authored 11 publications and is mentoring three graduate students. In his extension capacity, he has written two land-grant press articles (two more in development) and two magazine articles, co-authored a Southeastern U.S. vegetable crops handbook, given more than 20 extension talks and demonstrations, and co-hosted a field day at the Edisto Research and Education Center. In 2025, Jatana was selected as Clemson's nominee for the Foundation for Food and Agricultural Research (FFAR) New Innovators award. As principal investigator (PI) and co-PI, he has garnered more than $1 million in grants and contracts, including funding from stakeholder associations, state and federal agencies and an industry sponsor, with $650,000 going directly to his program.

Select Accomplishments

- Recently funded projects include:
  - » "From nursery to field: Arbuscular mycorrhizae fungi associated management of Fusarium wilt in watermelon," National Watermelon Association, $24,790.
  - » "Leveraging concentrated organic byproduct materials for higher nutrient use efficiency and anaerobic soil disinfestation in organic vegetable production," USDA Agricultural and Food Research Initiative: $866,439.
  - » "Systems approach to manage the fusarium wilt in cucurbits," S.C. Department of Agriculture, $45,541.
  - » "Filling the gaps for informed and economical adoption of Carolina Strongback grafted nursery to combat fusarium wilt," National Watermelon Association, $22,445.
  - » "Evaluating the potential of SAFEROCK to improve crop nutrient use efficiency, growth, and yield," SafeRock: $28,696.

College of
ARCHITECTURE, ART AND CONSTRUCTION

Vivek Sharma, Ph.D.

Assistant Professor

Nieri Department of Construction and Real Estate Development

Sharma is an assistant professor at Clemson University and an accounts manager for the National Health Care Facility Benchmarking Program. He is focused on benchmarking and project analytics-based healthcare research that advances capital project performance assessment. He is also interested in conducting healthcare research in a more holistic way to explore the impact of early programmatic and design decisions on facilities and patient outcomes. Sharma helped develop and implement an external Healthcare Benchmarking Program for the healthcare construction industry and Construction Industry Institute (CII) funded by the U.S. Department of Veteran Affairs (VA) and the U.S. Department of Defense (DoD) / Military Health System (MHS). Now, he is an account manager at Clemson University for a project funded by CII that includes working with healthcare industry partners, such as Kaiser Permanente, HCA, Adventist, AECOM and others, to build a robust healthcare database. In addition, he is a member of the American Society of Healthcare Engineers (ASHE – since 2016) and the American Society of Civil Engineers (ASCE – Since 2018). He chairs the Deployment (Healthcare Benchmarking and Professional Development) sub-committee under the Facilities and Healthcare Sector Committee for the Construction Industry Institute (CII) at the University of Texas, Austin. Sharma holds a Ph.D. in Civil Engineering (Construction Engineering and Project Management) from the University of Texas at Austin, a master's in science at Arizona State University, and a bachelor's degree in architecture from NIT Raipur, India.

Select Accomplishments

- Sharma, V., Mulva, S., Pappas, M., (2020) "Federal Facilities Data Analytics and Application Research Program." Consortium of Federal Agencies. $1,800,00.00 (Approved 2020) - Sub-award being negotiated.
- Sharma, Vivek (2020 -2021); "Develop benchmarking and project analytics that advance capital project benchmarking in the facilities and healthcare sector." Construction Industry Institute (CII), The University of Texas Austin, $108,344.00 (Funded 2020) Grant Awarded.
- Sharma, Vivek. Support CII's National Health Care Capital Facilities Benchmarking Program, Construction Industry Institute (CII), The University of Texas Austin, $35,432.70. (Funded: 2018 - 2019). Grant Awarded.
- Sharma, V., Pappas, M., Mulva, S., Federal Facilities Data Analytics Research Program, Federal Agencies, $2,400,000.00 (Submitted: March 25, 2020).
- Mousavi, E., Sharma, V., Gajjar, D. and Shoai Naini, S. (2020), "Renovation in hospitals: a case study on the use of control cubes for local repairs in healthcare facilities", Journal of Facilities Management, Vol. 18 No. 3, pp. 247-257.

College of ARTS AND HUMANITIES

Quinn Hiroshi Gibson, Ph.D.

Assistant Professor

Philosophy and Religion

Gibson is a philosopher working at the intersection of philosophy of mind and cognitive science, philosophy of psychiatry and medicine and ethics. He joined Clemson in Fall 2022, after serving as an assistant professor of philosophy at the American University of Beirut. He has a Ph.D. in philosophy from the University of California, Berkeley.

In his current research, he is exploring theoretical questions at the foundation of medicine (What is disease?), questions about the cognitive science of specific psychiatric conditions (How does addiction interfere with agency? Are clinical delusions rational? Is depression a brain disease?), and ethical and political questions raised by certain psychiatric diagnoses (Is autism a political rather than a medical category? Can a severely depressed person competently elect medical assistance in dying?) He is also interested in general issues in philosophy of mind and epistemology, such as the relation between affect and cognition and whether self-deception requires the division of the mind into sub-agents.

He teaches courses in philosophy of mind and cognitive science, the history of philosophy (ancient and early modern), biomedical ethics, philosophy of medicine and introductory courses in philosophy and logic.

Select Accomplishments

- "Autism, Care, and the Limits of Destigmatization." Forthcoming in *Contemporary Philosophy of Autism*, J. L Anderson and S. Cushing (eds.) (with Sarah Arnaud)
- "Delusions and Rationality." In *The Routledge Handbook of the Philosophy of Delusion*, Ema Sullivan-Bissett (ed.) 2025. (with Adam Bradley)
- "The Science and Moral Psychology of Addiction: A Case Study in Integrative Philosophy of Psychiatry." *Crítica*, 56(167): 127-155. 2024
- "Understanding, The Manifest Image, and 'Postmodernism' in Philosophy of Psychiatry." *Philosophy, Psychiatry, & Psychology*, 31(1): 21-24. 2024.
- "Philosophy's Role in Theorizing Psychopathology." *Philosophy, Psychiatry, & Psychology*, 31(1): 1-12. 2024
- "Interventionism and Intelligibility: Why Depression is not (Always) a Brain Disease." *The Journal of Medicine and Philosophy*, 49(2): 160-177. 2024

College of
BEHAVIORAL, SOCIAL AND HEALTH SCIENCES

Ashley Hedrick McKenzie, Ph.D.

Assistant Professor

Communication

A Clemson alumna, McKenzie joined the Department of Communication as an assistant professor in 2022. She completed bachelor's degrees in communication studies and English from Clemson University, master's and Ph.D. in Media and Communication from the University of North Carolina at Chapel Hill and a postdoctoral fellowship from the University Texas Health Science Center at Houston. Her research focuses on leveraging communication to improve women's health, including health outcomes such as cervical and breast cancer prevention, HPV vaccination, sexual violence prevention and contraception use.

McKenzie was awarded the Clemson University School of Health Research Faculty Fellowship for summer and fall 2025. As a Faculty Fellow, she will collaborate with Prisma Health Upstate's Department of Obstetrics and Gynecology to develop an intervention, titled "The Ally Pledge (TAP)." TAP's goal is to make cervical and breast cancer screenings more accessible to survivors of gender-based violence, who have heightened risks for cancers. She will develop training for health care providers who deliver cervical and breast cancer screenings about trauma-informed care and communication strategies. She will also develop a communication campaign to reach local survivors of gender-based violence and raise awareness about TAP resources.

Select Accomplishments

- Clemson University School of Health Research Faculty Fellowship, Summer/Fall 2025.
- Principal Investigator: Formative Research for The Ally Pledge (TAP): An Intervention targeting cervical and breast cancer screening among survivors of gender-based violence. (Clemson R-Initiatives CU SUCCEEDS Program 1 Project Initiation/Seed Funding, $9,783).
- Co-investigator: (Rachel Mayo, Principal Investigator): Expanding Treatment and Services for NAS for Mothers and Babies- Pickens County. (South Carolina Opioid Recovery Fund $421,137).
- Multiple principal investigator: Disinformation about Contraceptive Methods on TikTok: Content, Spreaders, and Empowerment as a Strategy for Mitigating its Effects. (Clemson Media Forensics Hub, $10,091).
- Published eight peer-reviewed articles and authored eight conference presentations with Clemson affiliation since joining the faculty in the fall of 2022.

Wilbur O. and Ann Powers College of BUSINESS

Jiahui Mo, Ph.D.

Assistant Professor

Management

Mo is an assistant professor in the Department of Management at Clemson University. Her research focuses on digital platforms, crowdsourcing and online innovation. Her research examines how individuals and businesses engage in crowdsourcing contests and digital markets, particularly how sponsorship and task recommendations influence participation and success. Her studies highlight the importance of strategic participation in online contests, showing that sponsorship may not always lead to higher engagement unless prize incentives are significant. Her research also investigates the role of online interactions in shaping e-commerce performance. She finds that active engagement in knowledge exchange within online communities can be beneficial, especially in highly competitive markets. Mo also explores artificial intelligence (AI) and its impact on online labor markets, analyzing whether enabling individuals to use AI in innovation contests fosters better solutions or merely increases competition.

In her research, Mo applies inter-disciplinary methodologies combining applied econometrics, experiments, machine learning, large language model, text mining and image analysis to examine stakeholders' behaviors and welfare.

Select Accomplishments

- Mo, J., Sarkar, S., and Chen, J. (2024). "Sponsored Tasks and Solver Participation in Crowdsourcing Contests." Conditionally accepted by *Information Systems Research*. (UTD24, FT50, Premier-MIS).
- Mo, J., and Zhang, N. (2024). "The Temporal Effects of Information Framing on Solver Participation in Open Innovation Contests." Accepted by *Information Systems Research*. (UTD24, FT50, Premier-MIS).
- Chen, Y., Boh, W.F., and Mo, J. (2024). "Different Types of Online Social Exchanges: Effects on Online Sellers' Sales Performance." *Information & Management*. (High-quality-MIS).

College of
EDUCATION

Steph N. Dean, Ph.D.

Assistant Professor

Teaching and Learning

Dean's research centers on outdoor learning and wellbeing in Pre-K-12 educational settings. Her work investigates how nature, play and place-based approaches can be systematically integrated into curricula to enhance student learning and teacher practice. Grounded in the belief that all students deserve access to high-quality educational experiences, her scholarship advances empirical and theoretical understandings of outdoor learning as a mechanism for fostering engagement, inquiry and academic achievement. Dean's research agenda is deeply translational, bridging theory and practice through sustained collaborations with local school districts and educational communities.

Dean has published in leading journals in her field, including the *Journal of Science Teacher Education*, *Journal of Experiential Education*, *Journal of Adventure Education and Outdoor Learning* and the *Interdisciplinary Journal of Environmental and Science Education*. She has also partnered with in-service elementary teachers to contribute to the practitioner journal *Science & Children*. Recently, she secured an internal College of Education grant to advance research on outdoor science education in rural contexts across the southeastern and northeastern United States. In fall 2024, she was awarded the Institute for Child Success Honorable Merl F. Code Early Educators Fellowship, supporting her efforts to explore outdoor access in early childhood settings and share findings with educational communities.

Dean is also an active member of the Association for Science Teacher Education, the North American Association for Environmental Education and the National Science Teaching Association. She serves on the editorial boards of *Science & Children* and the *International Journal of Early Childhood Environmental Education*.

Select Accomplishments

- Recipient of the Institute for Child Success Honorable Merl F. Code Early Educators Fellowship award.
- Principal Investigator for Clemson University College of Education Internal Seed Grant, "How do rural educators integrate the three dimensions of Next Generation Science Standards (NGSS) into outdoor learning?" ($9,922; 2023-2024); submitted NSF ECR: Core program Level II grant, September 2024.
- Collaborated with the School District of Pickens County in securing a South Carolina Department of Education Innovations Grant.
- Co-founder and co-leader of the Clemson Outdoor Collective, a network of scholars and practitioners dedicated to advancing research and practice around outdoor learning and well-being across Clemson University.

College of
ENGINEERING, COMPUTING AND APPLIED SCIENCES

Shunyu Liu, Ph.D.

Assistant Professor

Automotive Engineering

Liu joined the Department of Automotive Engineering at Clemson University as an assistant professor in January 2021 after earning her Ph.D. in mechanical engineering from Purdue University in December 2020. Her research areas include laser additive manufacturing (AM), hybrid AM, advanced materials development, computational materials science and machine learning. Her experimental research focuses on structural and functional metals, multi-material fabrication and advanced materials for extreme environments. Her computational research centers on developing simulation frameworks to model solidification, microstructure evolution, phase transformations and mechanical behavior. She is also building a thermal-mechanical-metallurgical model to explore dynamic recrystallization in a novel hybrid in-situ rolled AM process. Additionally, she integrates machine learning for materials design, process optimization, and defect control. Over the past four years at Clemson, she has secured nine grants totaling ~$10 million, with over $2.6 million as her share, funded by the National Science Foundation (NSF), U.S. Department of Energy and others. She collaborates internally across multiple engineering disciplines and externally with Argonne and Los Alamos National Laboratories and industry partners to advance manufacturing and materials technologies. With expertise in advanced manufacturing, materials science, solid mechanics and applied mathematics, her research aims to pioneer cutting-edge manufacturing techniques and develop innovative materials for critical applications.

Select Accomplishments

- NSF EPSCoR Research Fellowship (2025)
- SME Susan Smyth Outstanding Young Manufacturing Engineer Award (2024)
- NSF CAREER Award (2023)
- Best Reviewer Award of the *Journal of Manufacturing Science and Engineering* (2022).
- Authored 25 journal articles, holding a total citation of 3,426.
- Liu's comprehensive review, "Additive manufacturing of Ti6Al4V alloy: a review," became the most cited paper in the *Materials & Design* journal within two years of publication.
- Liu's first-author paper, "A novel 3D Cellular Automata-Phase Field model for computationally efficient dendrite evolution during bulk solidification," published in *Computational Materials Science*, was chosen as an Editor's Choice for its exceptional accuracy and computational efficiency (2021).
- One of Liu's Ph.D. students was selected as one of the two recipients of the prestigious $25,000 Hitachi Microscopy Graduate Fellowship at Clemson University (2024).

College of SCIENCE

Christopher Chouinard, Ph.D.

Assistant Professor

Chemistry

Chouinard is an analytical chemist whose research focuses on advancing next-generation measurement technology for biomedical, clinical and environmental applications. Specifically, his laboratory develops instrumentation with ion mobility-mass spectrometry (IM-MS), a technique for rapid and comprehensive characterization of complex samples ranging from athlete urine to recreational drug mixtures.

During post-doctoral studies at Pacific Northwest National Laboratory (PNNL), Chouinard helped develop a novel IM-MS technique called Structures for Lossless Ion Manipulations (SLIM), which was recently commercialized by MOBILion Systems, Inc. Since then, research partnerships with both MOBILion and Agilent Technologies have brought cutting-edge (and one-of-a-kind) research infrastructure to Clemson. A recently funded collaboration with Prisma Health applied this technology to assess chronic gastritis in children, revealing unique molecular signatures that may be used to help diagnose, treat and even prevent that pediatric condition.

Since moving to Clemson in 2022, Chouinard's research has expanded to include analysis of illicit recreational drugs and emerging environmental contaminants. His group has published several papers targeting fentanyl analogues and other psychoactive substances as a method to more rapidly identify these compounds in drug mixtures and through metabolism products in people exposed to those drugs. These studies have also prompted numerous fundamental collaborations (University of Waterloo, Fritz Haber Institute) and biomedical collaborations (MUSC, UC San Francisco). Furthermore, his group has developed ultrahigh-resolution methods for identifying PFAS and other dangerous contaminants in both environmental and biological samples.

Select Accomplishments

- 2024 Emerging Investigator by the American Society for Mass Spectrometry
- New investigator in the Eukaryotic Pathogens Innovation Center (EPIC), Clemson's NIH-funded Center of Biomedical Research Excellence (COBRE)
- Funded by the Partnership for Clean Competition, the research arm of the United States Anti-Doping Agency, to develop novel methods for detection of performance-enhancing drugs
- Faculty Scholar in the Clemson University School of Health Research (CUSHR) and Faculty Fellow in the Robert H. Brooks Sport Science Institute
- Currently advising three graduate students with a Ph.D. student expected to graduate in Spring 2025. Currently advising multiple undergraduate students; past undergraduates have gone on to Ph.D. studies at top graduate schools, including Vanderbilt University, Ohio State University and University of South Florida.

Division of
RESEARCH

Quarterly Research Report

April 2025