RESEARCH

Quarterly Research Report

October 2025

Tanju Karanfil

Senior Vice President for Research,

Scholarship and Creative Endeavors

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

Navigating the Shifting Research Landscape.

Clemson's research enterprise hit a significant milestone in fiscal year 2025 (FY25): Proposal submissions for the year topped $1 billion for the first time. Submissions have doubled over the past decade, thanks to the hard work of our faculty, students, research associates and committed administrative staff that support this work amid a rocky sea of ever-changing federal policies, regulations and directives.

In FY25, competitive research awards were $240 million, which is in line with past years, and competitive research expenditures climbed to $219 million. Research awards increased to $240 million. Data comparing past fiscal years is available in the Metrics section.

The $1 billion proposal milestone is a significant achievement for an institution that set a lofty goal more than a decade ago to become a perennial Carnegie R1 institution, and as now established in Clemson Elevate, to position itself for American Association of Universities (AAU) membership and to double research yet again. Surpassing $1 billion in proposals demonstrates a strong commitment to research by our faculty, students, researchers and Division of Research administrative staff.

Faculty are doing this while facing numerous challenges. Among those challenges are our institutional spending controls and guidelines. These budget strategies, while serving to protect the institution's fiscal health, have created operational inefficiencies and slowed the pace of research performance. As a researcher, I see it myself as I continue to manage my own grant-funded projects, fill grant-funded positions, teach my students, write proposals for new funding and lead research in my lab. And as an administrator, I understand the delicate balance of managing our budget realities with our pursuits of research growth. FY26 will be a challenge to our research enterprise, but I am optimistic that it will be a transitional year to a brighter future in FY27.

As we look to FY26, the higher education landscape is changing as priorities of the federal government, by far the largest investor in academic research, have changed. Clemson will need to adjust.

As previously reported, executive orders have dismantled certain research programs, and some universities saw numerous grants cancelled. The wave of cancellations now appears to have slowed significantly. Clemson had 23 projects cancelled with a remaining balance of $58 million. Of that, $52 million is from the grant from the U.S. Department of Agriculture that we expect will be reinstated.

A significant ongoing concern is support for the indirect costs of research. The federal government shares these costs by adding a percentage of funding to its grant awards, which it wants to reduce to 15%. While that reduction has been legally challenged, organizations representing the interests of higher education proposed a new model for helping universities cover the indirect costs of conducting research. Their Financial Accountability in Research (FAIR) Model would create a system similar to the tax method of electing either standard or itemized deductions for expenses. On the other side, the Office of Management and Budget reportedly may implement a uniform 15% indirect cost rate, which would supersede individual agency policies and shift some costs previously defined as "indirect" to "direct" for cost recovery, according to reports from APLU. We are closely monitoring resolution of this matter.

We are also closely monitoring the status of international students. In August, the Department of Homeland Security (DHS) proposed a rule to limit the time international students can remain in the U.S. to four years or less. This would complicate students who need more than four years to finish their program or who plan to complete post-program practical training. Additionally, the administration

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

has announced a $100,000 application fee on the H1-B visa program, which could affect the hiring of international faculty and postdoctoral researchers. We are still awaiting further clarification of the implications on higher education. If implemented, these actions will significantly affect Clemson and higher education as a whole by deterring international students from studying in the U.S., stressing graduate recruiting and the research workforce. According to the National Center for Science and Engineering Statistics, temporary visa holders earn half or more of U.S. doctoral degrees in certain science and engineering fields — computer sciences (59%), engineering (58%) and mathematics and statistics (51%) — and 62% in economics.

Finally, the executive branch has proposed significant cuts to federal agency budgets. Fortunately, the U.S. House and U.S. Senate have proposed to restore some, if not all, of these cuts in their budget versions, so it is unclear how the dust will settle after negotiations. We will watch this matter closely to better understand the pool of available funding for university research. Obviously, diminished resources at federal agencies will create an increasingly competitive environment for U.S. universities.

While we monitor resolution on these matters, we continue to celebrate the successes of our faculty and students.

Our faculty are earning patents for their innovations, being recognized for lifetime achievements, earning national awards and having an impact across the state through their research, scholarship and creative endeavors. You can read more about these honors and achievements on pages 13-16.

Similarly, our students are actively engaged in research that is opening up unique experiential learning opportunities, generating business ideas, resulting in new technologies and earning them national recognition. Read more about student research on pages 16-18.

I have immense pride for the work of our students and faculty, particularly given the challenges created by our internal spending strategies and the federal government's pressure on academic research. It is clear that the Clemson family has a shared commitment to working through challenges together. Clemson is proving itself a strong Carnegie R1 research institution working to adapt, innovate and impact our state and region.

Sincerely,

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

Senior Vice President for Research, Scholarship and Creative Endeavors

Clemson University

RESEARCH

RESEARCH METRICS

This section covers institutional research productivity with data on proposal submissions, awards and expenditures.

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 $219 million for FY2025. 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 topped $1 billion for the first time in FY2025. Details on proposals per college, along with targets for FY2025, are on page 8.
- Research awards for FY2025 were $240.4 million. Details on awards per college are on page 9.
- Clemson faculty remain successful at earning high-value awards. A list of the largest grants received in FY2025 is 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

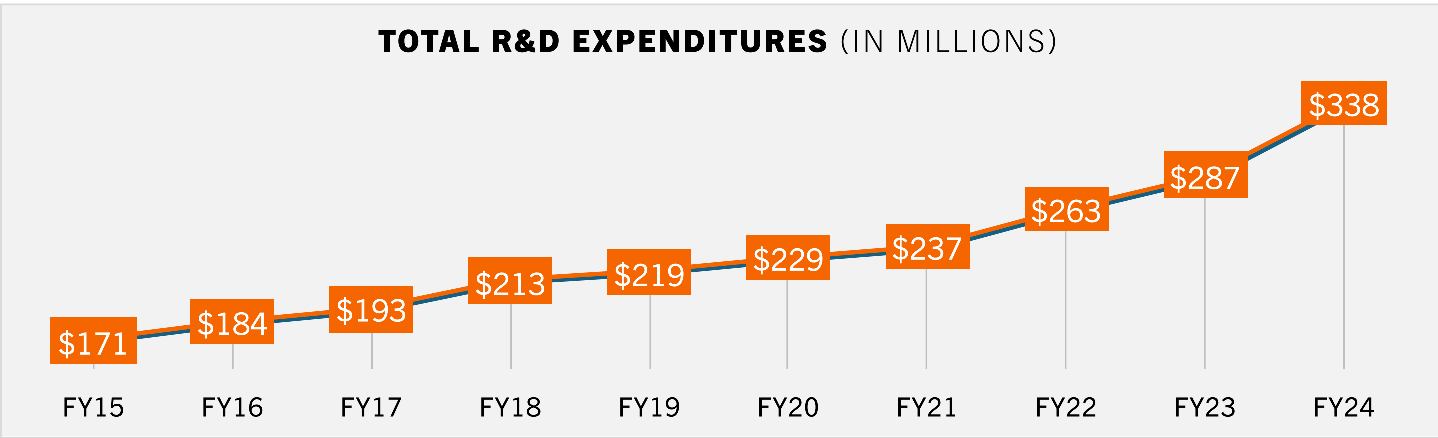
COB: Wilbur O. and Ann Powers College of Business

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.



	2021	2022	2023	2024	2025
NIH R01-Equivalent Awards	3	1	6	2	3
Doctorates Awarded	225	242	285	310	318
STEM Doctorates Awarded	159	172	190	197	220
Disclosures	44	50	61	76	73
Patents	15	33	11	13	11
Licenses/Options	13	27	16	20	4
Licensing Revenue	$239,074	$380,286	$392,162	$387,274	$410,660
Start-up Companies (based on licenses/options)	1	4	4	7	8
Supporting Workforce					
Graduate Student Enrollment	5,538	5,448	6,401	5,872	5,676
Sponsored Graduate Research Assistants	546	729	926	1,049	1,031
Postdoctoral Fellows	106	117	112	141	151
Research Faculty: Permanent 100% Non-E&G Funded	12	2	5	4	3
Research Faculty: Temporary 100% Non-E&G Funded	45	32	28	36	56

Competitive Expenditures (Year End FY2025)

Competitive expenditures were $219 million for FY2025. 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 graph on the following page compares annual competitive expenditure data over the past decade

Research Expenditures (millions)	2021	2022	2023	2024	2025
By Business Unit	$114.4	$141.4	$160.3	$198.5	$218.5
CAAC	$1.0	$1.1	$1.3	$1.8	$1.9
CAH	$0.1	$0.2	$0.6	$1.0	$1.4
CAFLS	$20.5	$25.0	$29.7	$40.7	$45.8
COB	$0.7	$0.7	$1.0	$1.4	$1.6
CECAS	$54.4	$71.7	$76.0	$88.6	$95.9
CBSHS	$9.0	$12.0	$16.7	$21.1	$27.1
COE	$2.3	$3.8	$5.6	$6.6	$7.0
COS	$15.9	$18.5	$23.1	$28.0	$28.7
VP for Res & Interdisc Inst	$9.6	$7.0	$6.2	$7.6	$6.9
All Other	$0.8	$1.5	$1.6	$1.8	$2.2
By Innovation Cluster	$114.4	$141.4	$160.3	$198.5	$218.5
Advanced Materials	$14.3	$18.6	$21.1	$23.6	$25.6
Cyberinfrastructure & Big Data Science	$5.5	$8.2	$7.7	$8.6	$9.8
Energy, Trans. & Advanced Manufacturing	$19.9	$27.7	$29.5	$32.0	$34.5
Health Innovation	$27.1	$26.3	$30.5	$38.7	$42.9
Human Resilience	$12.7	$14.8	$19.1	$24.2	$25.8
Sustainable Environments	$21.3	$26.8	$33.7	$49.7	$55.9
Other	$13.6	$19.6	$20.2	$21.7	$24.1

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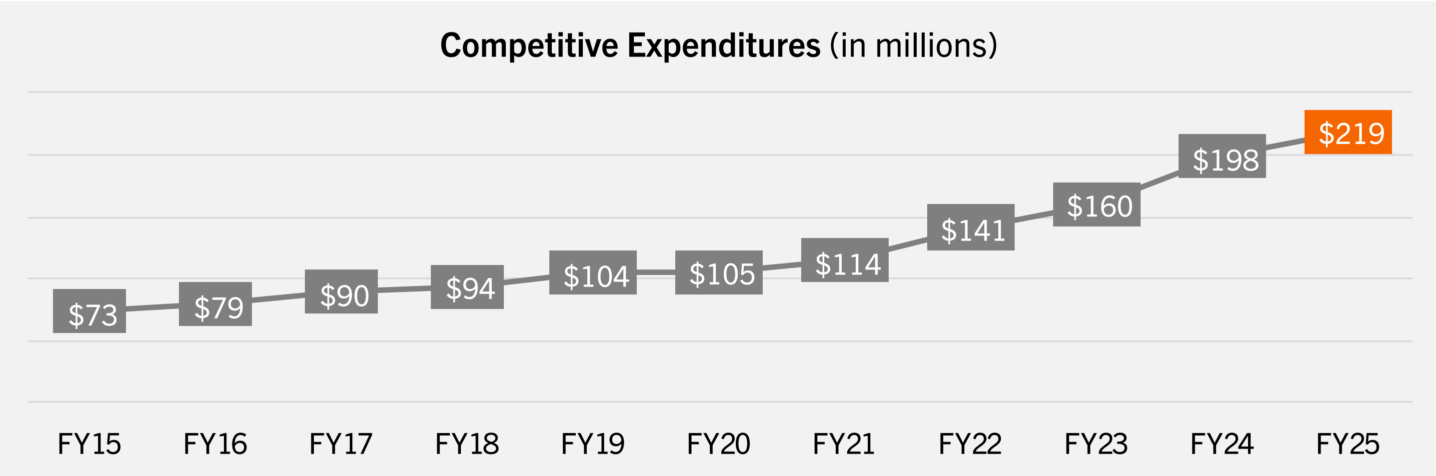
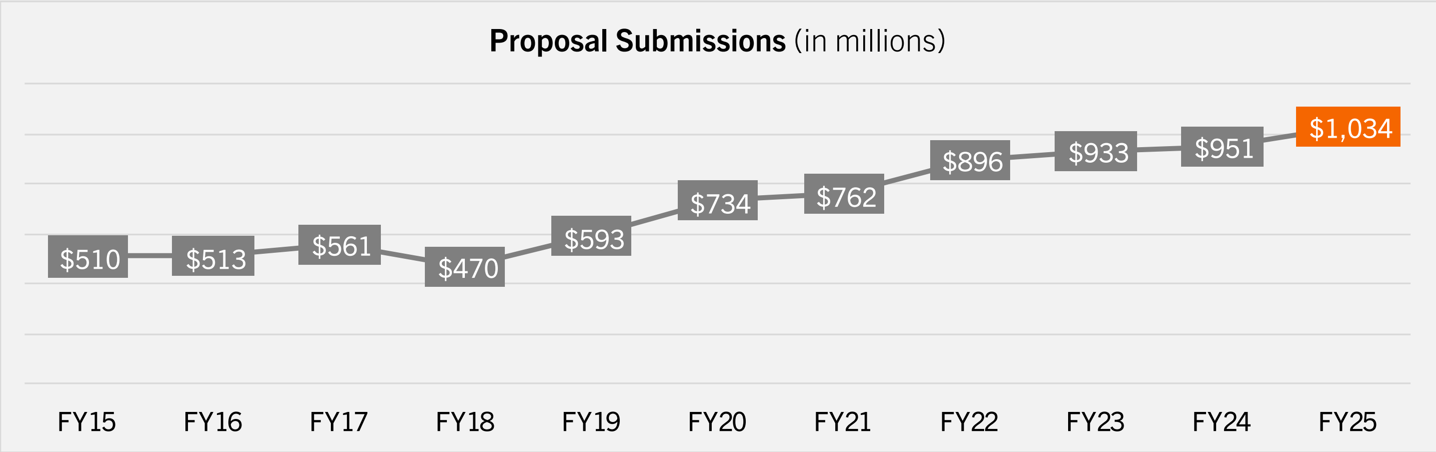
Competitive Expenditures (Year End FY2025)



Research Expenditures (millions)	2021	2022	2023	2024	2025
By Funding Source	$114.4	$141.4	$160.3	$198.5	$218.5
Federal Government	$95.1	$125.1	$141.0	$175.0	$193.0
Foundations, Societies and Associations	$6.2	$4.6	$5.4	$6.6	$7.2
Industry/Other	$4.8	$4.8	$5.9	$5.2	$4.9
International	$0.4	$0.5	$0.5	$0.6	$0.5
Local Government	$0.8	$0.9	$0.7	$0.6	$0.8
State Government	$7.3	$6.2	$8.2	$10.4	$12.0
Per T/TT Faculty Member					
CAAC	$18,195	$21,321	$26,231	$35,020	$36,468
CAH	$1,113	$1,864	$5,507	$10,135	$13,125
CAFLS	$131,195	$196,657	$231,788	$301,646	$339,614
COB	$7,132	$6,787	$9,865	$14,564	$15,709
CECAS	$223,843	$296,203	$310,088	$358,535	$386,815
CBSHS	$67,202	$90,220	$121,581	$149,294	$179,508
COE	$48,805	$80,058	$121,114	$124,266	$124,571
COS	$107,258	$120,778	$146,445	$177,322	$177,284
Clemson average (Total exp/Total T/TT faculty)	**$103,187**	**$142,129**	**$159,792**	**$196,501**	**$207,926**

Proposal Submissions (Year End FY2025)

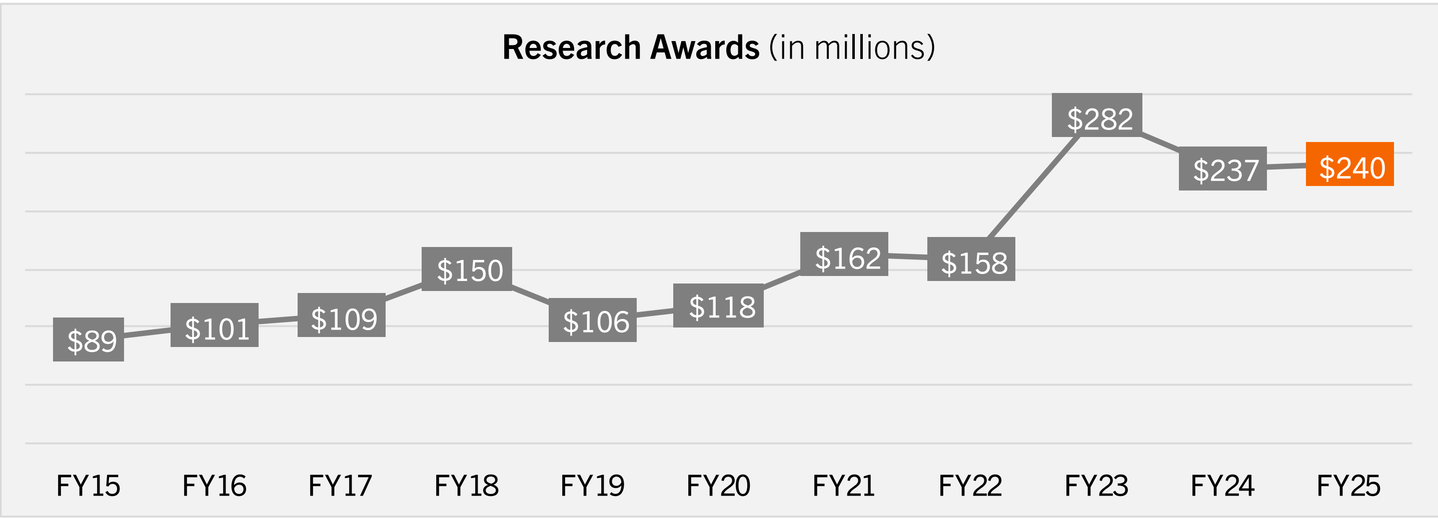
Proposal submissions topped $1 billion for the first time in FY2025. The graph shows annual submissions value over the past decade.



Proposal Submissions	2021	2022	2023	2024	2025	
By Count	1,581	1,492	1,680	1,728	1,708	
CAAC	49	24	20	18	30	
CAH	12	11	7	12	14	
CAFLS	426	392	451	455	454	
CBSHS	150	151	183	179	176	
CECAS	596	631	684	701	623	
COE	37	43	45	49	97	
COB	14	9	11	11	14	
COS	229	193	259	262	272	
VP for Res & Interdisc Inst	29	23	11	13	11	
All Other	39	15	9	28	17	
By Value (millions)	$762	$896	$933	$951	$1,034	FY2025 Targets
CAAC	$3.8	$6.5	$10.4	$8.6	$9.6	**$11.47**
CAH	$1.7	$1.7	$3.0	$1.5	$0.9	**$3.32**
CAFLS	$89.7	$249.9	$149.6	$188.9	$205.3	**$164.97**
CBSHS	$64.3	$73.1	$106.5	$116.4	$107.6	**$117.39**
CECAS	$342.9	$380.8	$426.0	$429.8	$430.2	**$469.62**
COE	$22.4	$32.3	$34.4	$34.0	$76.8	**$37.91**
COB	$4.2	$4.8	$6.3	$3.1	$4.1	**$6.9**
COS	$175.4	$127.3	$169.8	$125.5	$186.6	**$187.17**
VP for Res & Interdisc Inst	$22.3	$11.0	$6.7	$5.7	$2.1	
All Other	$35.7	$8.9	$20.3	$36.9	$10.6	

Research Awards (Year End FY2025)

Research awards for FY2025 were $240.4 million. The graph below shows annual awards earned over the past decade. 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
By College/Unit (millions)	$162.2	$157.6	$282.0	$237.3	$240.4
CAAC	$1.0	$0.4	$3.4	$1.5	$2.3
CAH	$0.4	$0.8	$2.1	$0.7	$0.4
CAFLS	$29.9	$26.9	$107.4	$37.4	$47.8
CBSHS	$17.4	$13.7	$21.0	$27.8	$20.7
CECAS	$75.0	$76.4	$102.8	$109.4	$102.0
COE	$5.1	$5.7	$10.1	$4.9	$13.4
COB	$0.2	$0.9	$1.1	$1.1	$1.9
COS	$25.4	$17.8	$24.4	$34.0	$24.6
VP for Res & Interdisc Inst	$5.1	$6.6	$7.1	$7.0	$7.4
All Other	$2.6	$8.3	$2.6	13.5	$19.8
Young Investigator Awards	9	5	8	10	8
NSF CAREER	8	4	6	10	6
NIH KO1	-	-	-	-	2
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 (FY2025)

The U.S. Army awarded Clemson an additional $16 million in support of the Virtual Prototyping of Autonomy-Enabled Ground Systems (VIPR-GS). A partnership with the U.S. Army DEVCOM Ground Vehicle Systems Center (GVSC), VIPR is working to develop innovative digital engineering tools for rapid exploration and design of the next generation of on- and off-road vehicles. The project consists of 80 Clemson faculty from across 13 departments and more than 130 student researchers. VIPR is led by Rob Prucka, the Alan Kulwicki professor of motorsports engineering and director of the Deep Orange Vehicle Prototyping Program.

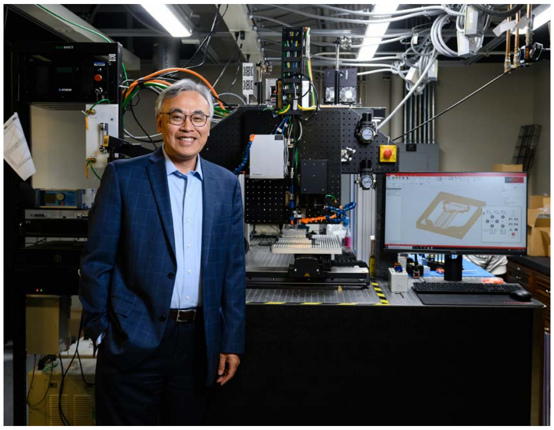
Clemson received $12.5 million from the U.S. Economic Development Administration as part of the agency's investment in the statewide SC Nexus collaboration, of which Clemson is a core member. The grant will fund an expansion of the eGRID electrical grid simulator at the Dominion Energy Innovation Center 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.

Clemson received $6.4 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 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.

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.

Top Competitive Awards (FY2025)



The U.S. Department of Energy also invested $4.7 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.

The U.S. Army awarded Clemson $4.2 million via the University of Alabama-Huntsville to continue a project investigating advanced laser systems. This work aims to improve the performance of beams of directed energy (DE) that can address threats at the speed-of-light and are especially critical to counter future hypersonic weapons. This project utilizes cutting-edge optical materials and structured light engineering capabilities within Clemson University's Center for Optical Materials Science and Engineering Technologies. The project is led by Joe Watkins, director of general engineering.

The U.S. Department of Agriculture (USDA) awarded Clemson another $3.6 million to continue efforts to eradicate the Asian longhorned beetle, which threatens extensive loss to ornamental and commercial tree species and forested areas if not contained. The project is led by Steven Long, assistant director of Clemson Regulatory Services.

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 U.S. Department of Energy awarded Clemson $2.9 million for research on next generation hydrogen technologies. Led by Hai Xiao, the Milton W. and Betty Holcombe Chair in Electrical and Computer Engineering, the project aims to develop high-performance ceramics, composites and other advanced materials and coatings, as well as research advanced manufacturing technologies, for the advancement of hydrogen energy devices and systems. Hydrogen presents a significant growth opportunity in the clean energy sector.

RESEARCH

RESEARCH NEWS

This section highlights research news from across the university.

Executive Summary

- Clemson faculty are earning patents for their innovations, being recognized for lifetime achievements, earning national awards and having impact across the state through their research, scholarship and creative endeavors. You can read more about these honors and achievements on pages 13-16.
- Similarly, Clemson students are actively engaged in research that is opening up unique experiential learning opportunities, generating business ideas, resulting in new technologies and earning them national recognition. Read more about student research on pages 16-18.

Honors and Achievements

Clemson University researchers have earned U.S. patents for innovations in health care, agriculture, manufacturing, advanced materials and numerous other fields. The Clemson University Research Foundation (CURF) recognized the dedicated Clemson researchers behind the 12 U.S. patents earned in 2024 at its annual Innovation Awards at the Madren Conference Center this fall. "A trend you will see across the awards tonight is the inventor's dedication to meaningful innovations that address real-life challenges – a reflection of Clemson's research ecosystem and its drive to make a worldwide impact," said CURF Executive Director Chris Gesswein. At the event, CURF also recognized faculty members who have successfully licensed technology. As of 2025 fiscal year-end, CURF has 118 active licenses from a comprehensive intellectual property portfolio that span the multi-disciplinary Clemson University research enterprise. Licenses from 2024, as well as 2024 patents, are listed online here.

In the past year, three of the nation's top awards for early-career researchers have gone to five faculty members in the Clemson University College of Engineering, Computing and Applied Sciences. Award recipients are Cheng Sun, Daljit Singh Dhillon, Christopher Flathmann, Nianyi Li and Ming Yang. Dhillon, Li and Yang received CAREER Awards from the National Science Foundation, while Flathmann has secured an award through Air Force Office of Scientific Research's Young Investigator Program. Sun won the prestigious Presidential Early Career Award for Scientists and Engineers. "These awards speak to the exceptional talent we attract to Clemson," said Yue Wang, the college's associate dean for research. "They bring bold ideas, resilience, and a deep commitment to making a positive impact—both through their research and their mentorship of future engineers and scientists. Their growth and success is vital to the college's mission, and we are proud to support their journey." READ MORE

Ann Wetsel, professor in the Clemson University School of Nursing, received the highest civilian honor in the state of South Carolina, the Order of the Palmetto, in recognition of her lifetime achievements and contributions to the field of nursing and commitment to the health and well-being of individuals and communities across South Carolina and beyond. Awarded by Governor Henry McMaster, the Order of the Palmetto is presented to individuals who have exhibited a lifetime of extraordinary achievement, service and contributions on a statewide or national scale. It recognizes those who have selflessly dedicated their careers and given of their time and resources to benefit their fellow citizens and the prosperity of South Carolina. In the School of Nursing, Wetsel served as associate director of academic programs and was instrumental in curriculum development for undergraduate and graduate nursing programs. She also led the development of an academic partnership between Prisma Health to benefit undergraduate and graduate nurse education, as well as patient care for South Carolinians. READ MORE

Honors and Achievements

A team from Clemson University was chosen to participate in 2024–25 American Association of Colleges and Universities (AAC&U) Institute on AI, Pedagogy, and the Curriculum. This national initiative convened institutions committed to thoughtfully integrating AI into curriculum and pedagogy. Representing a cross-section of leadership, faculty and academic support, the Clemson AI team, with advisory group support, surveyed instructors on AI use in teaching and delivered workshops and discussions that reached several hundred colleagues across campus. These efforts have sparked meaningful conversations on how AI enhances critical thinking, creativity and responsible innovation in the classroom. Building on this foundation, the Clemson AI team is developing strategies aligned with the University's Clemson Elevate strategic plan to: develop guiding principles for AI integration across campus; expand AI literacy among students and faculty; promote ethical and impactful uses of AI in teaching and learning; and foster a Universitywide network for innovation and collaboration across disciplines. READ MORE

Kenneth Robinson, associate professor in the Clemson University Department of Sociology, Anthropology and Criminal Justice and agribusiness extension specialist, will serve as outgoing president and chair of the executive committee of the Rural Sociological Society (RSS) through 2026, concluding his three-year term as the Society's eighty-eighth president-elect, president and outgoing president. He is the first Clemson University professor to hold the position. "The RSS mission closely aligns with the College of Behavioral, Social and Health Sciences' commitment to building people and communities, and I am grateful to have had the opportunity to support my colleagues and the broader academic community in our united effort to advance scholarship, foster engagement and build connections to benefit rural communities nationwide," he said. READ MORE

Mashrur "Ronnie" Chowdhury, the Eugene Douglas Mays Chair of Transportation and a professor of civil engineering, has been honored with the 2025 IEEE Intelligence and Security Informatics (ISI) Technical Achievement Award for his work in making transportation systems smarter and more secure. Chowdhury has built a national reputation as a leader in developing next-generation infrastructure that can withstand cyberattacks while enabling connected and autonomous vehicles to safely share the roads. The award, presented virtually during the IEEE ISI Conference in Hong Kong in July, recognizes Chowdhury's "pioneering research and transformative technological innovation in cybersecurity and resiliency for intelligent transportation systems." The ISI conference is a flagship international event for research at the intersection of artificial intelligence, security and data science. READ MORE

Honors and Achievements

Clemson researchers are making a big impact in K-12 classrooms, powering a proactive approach to student behavior through the Behavior Alliance of South Carolina. The researchers behind the Behavior Alliance of South Carolina (BASC) have provided pathways to success and support for lasting change in school systems since forming in Fall 2022. The South Carolina Department of Education Office of Special Education Services funds BASC at Clemson University to work directly with the state to help districts and schools across South Carolina build capacity for supporting students with behavioral needs. This program equips 18 S.C. school districts to support over 200,000 students, providing pathways to success and support for lasting change in school systems. Survey data of participants shows that 100% of respondents agreed that professional development provided by BASC has impacted their work. READ MORE

Additionally, Clemson University will lead a national center dedicated to improving teaching practice and educational leadership in rural settings with a consortium of higher education institutions. Clemson's College of Education will serve as the host institution for the University Council for Educational Administration (UCEA) Center for Innovative Rural Collaborative Leadership Education (CIRCLE). CIRCLE will establish and emphasize research-practice partnerships by engaging with alliances in schools, businesses and community organizations. The center will organize this work around three pillars: practitioner professional development, research and collaboration for grant funding. Partner districts working with CIRCLE institutions face unique challenges due to small populations and remote locations. These challenges include high and persistent poverty, high teacher and leader turnover, low funding and the logistical difficulties inherent in widely dispersed geographic rural areas. By leveraging collaborative expertise in rural education and research across all the institutions involved, CIRCLE is well-positioned to make a significant impact on the lives and livelihoods of rural communities. READ MORE

Eight Clemson Cooperative Extension professionals were recognized with national awards at the 2025 National Association of County Agricultural Agents Annual Meeting and Professional Improvement Conference, affirming their significant impact in South Carolina communities. The awards presented to Clemson Extension agents span multiple categories, from early-career achievement to communication and environmental programming. "This recognition is not just about individual accolades—it's about local impact," said Tom Dobbins, Clemson Extension director. "Our agents live and work in the communities they serve. These awards reflect their commitment to making life better for the people of South Carolina." READ MORE

Honors and Achievements

Bioengineering Professor Jeremy Gilbert received this year's Clemson Award for Contributions to the Literature from the Society for Biomaterials. The award's name reflects the strong ties between the society and Clemson's bioengineering program and marks the first time a Clemson professor has held the honor since 1991. Gilbert serves as the Hansjörg Wyss Endowed Chair for Regenerative Medicine and the director of the Clemson-MUSC Bioengineering Program. He specializes in making metal implants, such as hips and knees last longer in the body. Joshua Jacobs, an orthopedic surgeon at Rush University Medical Center who has collaborated with Gilbert, said he stands out for the breadth and depth of his metallurgy knowledge, particularly electrochemistry-related research, along with his ability to communicate it to physicians. READ MORE

Alexis Stamatikos, assistant professor in the Department of Food, Nutrition and Packaging Sciences, was named Discovery Chamber representative for the American Heart Association South Carolina Upstate Region. This recognition celebrates Stamatikos as a leading researcher of cardiovascular disease. "With heart disease the leading cause of death in the U.S. and projections showing a troubling rise in risk factors among younger populations, the urgency of this mission has never been greater," Stamatikos said. Scientific discovery is a key component of the American Heart Association's strategy to accelerate cardiovascular and cerebrovascular research. Stamatikos has dedicated his career to understanding what causes heart disease and how to stop it. His current research focuses on atherosclerotic cardiovascular disease, the leading contributor to heart disease and stroke. He was recently elected Fellow of the American Heart Association. READ MORE

More than 150 Clemson students spent their summer in the 10-week Summer Creative Inquiry + Undergraduate Research (CI) program. Students engaged in intensive, full-time research projects, weekly professional development seminars and social activities. The selection process for Summer CI is competitive, and participants are all nominated by faculty mentors before they apply by submitting a research proposal. Research topics included technology in the workplace, machine learning in finance and real estate and restoration ecology. READ MORE

Honors and Achievements

Clemson graduate automotive engineering students unveiled Deep Orange 16, a next-generation, semi-autonomous vehicle designed to transform emergency response in extreme conditions. Developed through the university's acclaimed Deep Orange program, the vehicle merges advanced technology with mission-critical functionality to enhance the speed, safety, and efficiency of rescue operations. Sponsored by the Virtual Prototyping of Autonomy-Enabled Ground Systems (VIPR-GS) Research Center and developed in collaboration with the U.S. Army and other strategic partners, Deep Orange 16 is engineered to tackle some of the toughest challenges in high-risk rescue scenarios—reducing response time while limiting the number of personnel needed in the field. Inspired by the real-world challenges faced during Hurricane Helene, the Deep Orange 16 team engineered the vehicle to support critical disaster response efforts. READ MORE

Allysa Baker, a second-year Ph.D. student in the Department of Biological Sciences, recently compiled the first nuclear and mitochondrial genomic portrait of the Juan Fernandez Islands rock lobster Jasus frontalis. Also known as Robinson Crusoe's spiny lobster, the crustacean plays a key role in the local ecosystem and economy. In this study, Baker generated for the first time genomic resources for the Robinson Crusoe lobster using new bioinformatics tools that can retrieve useful biological information even from limited genomic datasets. Using a muscle tissue sample from the Clemson Crustacean Collection, Baker extracted genomic DNA, which was sequenced using next-generation sequencing technology. She then assembled the mitochondrial genome and analyzed the nuclear genome using bioinformatic tools. READ MORE

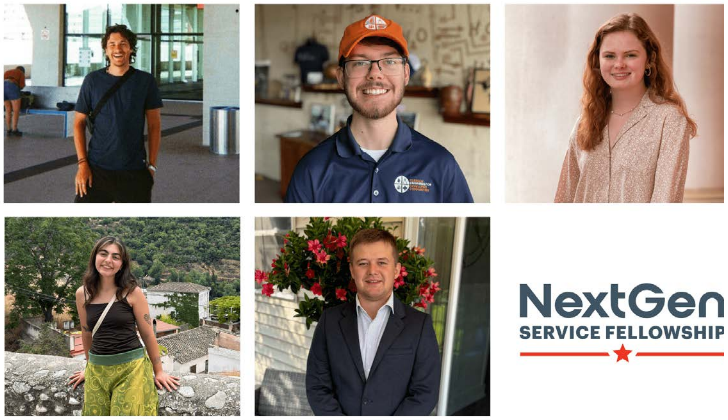
A group of Clemson researchers including Ph.D. students Gen Li and Chun-Chih Lin is developing a transformer-based system to ensure the security of wireless messages and has the potential for various uses in combating hackers. The transformer used in the new Clemson-led project is a deep-learning architecture that powers large language models—a form of artificial intelligence capable of processing and generating human-like language. But a Clemson-led team has repurposed the transformer for a new use– helping ensure the security of messages that are sent wirelessly. The team calls its development a transformer-based Automatic Modulation Recognition system. It has the potential to join the often-unseen bulwark against hackers, benefitting everyone from two friends texting lunch plans to commanders communicating with soldiers on the battlefield, researchers said. READ MORE

Honors and Achievements

continued from previous page

Jack Berg ’25, co-founder of simpleRx, won the MBA in Entrepreneurship and Innovation’s “Shark Tank”-style Enterprize Awards, receiving a $15,000 prize in startup funding. His business idea simpleRx provides an innovative way to help consumers purchase their prescription medications. With the $15,000 in seed funding from the Enterprize Awards, Berg plans to allocate the money to development for his app. The idea for simpleRx is rooted in Berg’s frustration with the unpredictable costs associated with prescription medicine for consumers. “In the current climate, when a prescription is written the patient needs to choose which pharmacy to send it to from the doctor’s office,” says Berg. “Consumers are heavily restricted in their autonomy to shop for which pharmacy has a better price, or even if the drug is in stock.” READ MORE

During a lab analysis, doctoral student Miriam Boucher, Ph.D. ’27 and a group of undergraduate students discovered a football inside the stomach of an alligator from Alabama. The discovery was part of research conducted by students in a Creative Inquiry (CI) course studying ecotoxicology, the study of toxic pollutants and how they affect the environment and its inhabitants. Boucher is a graduate research assistant at Clemson’s Baruch Institute of Coastal Ecology and Forest Science. READ MORE



Six Clemson students were selected for the 2025 NextGen Service Fellowship, a new national program sponsored by the Institute of International Education and the Rockefeller Foundation. Clemson’s recipients are among 52 fellows nationwide from only nine universities. The fellowship offers students immersive, service-learning experiences that deepen global awareness and foster careers dedicated to international development. Fellows will spend four weeks with nonprofit or community-based organizations in Latin America, Sub-Saharan Africa or Southeast Asia this summer. All have been paired with a host country and site they either selected or were placed in by program staff. Their work will help address issues ranging from sustainability and education to public health and food security. Clemson Fellows are David Ryan Gregory, from Fort Mill, who graduated with a degree in economics in May; Paul Kupfer, a mechanical engineering major and Honors student from Irmo; Mary “Elizabeth” Mulligan, an Honors student from Lexington who graduated with a biological sciences degree in May; Grace Nammouz from Clemson, who graduated with an environmental and natural resources degree in May; Noah Willsea from Grand Rapids, Mich., a Ph.D. student in plant and environmental sciences; and Matthew Porzio, an Honors student from Charleston who graduated with a mechanical engineering degree in May.
READ MORE

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

Ramesh Jeganathan, Ph.D.

Chair

Food, Nutrition and Packaging Sciences

Jeganathan became chair of the Department of Food, Nutrition and Packaging Sciences in August 2025, bringing more than 25 years of academic, research and leadership experience to the College of Agriculture, Forestry and Life Sciences (CAFLS). Prior to joining Clemson, he worked at Auburn University as Bruno Endowed Professor of Nutrition, served as graduate program director and was interim co-associate dean for research and graduate studies.

Jeganathan earned his Ph.D. in medical biochemistry with a special emphasis on human nutrition from the University of Madras. He holds an M.S. degree from Annamalai University. His postdoctoral training took him to Mayo Clinic College of Medicine and Science in Rochester, Minn., and Auburn University.

Jeganathan's research focuses on uncovering the link between type 2 diabetes and Alzheimer's disease. Obesity can lead to type 2 diabetes, and research shows that having diabetes in midlife can raise the risk of developing Alzheimer's disease. Jeganathan's team discovered two genes, p62 and TrkA, that play critical roles in both obesity-related diabetes and neurodegeneration, offering potential pathways for new therapeutic strategies. His research has been funded by the National Institutes of Health (NIH), U.S. Department of Agriculture (USDA) and private foundations.

Select Accomplishments

- Has published nearly 100 peer-reviewed journal articles and abstracts, and delivered over 120 presentations at national, international and regional conferences.
- Has served on the NIH National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) Grant Review Committee since 2014, including service as chair of an NIH study section, underscoring his national leadership in research.
- Has mentored more than 145 graduate students as major professor, committee member or external examiner, in addition to supervising 46 undergraduates and five postdoctoral fellows. His former doctoral students have gone on to postdoctoral positions at institutions such as Columbia and Stanford, as well as faculty appointments and research roles in leading biotechnology companies.
- Was selected and served as a Southeastern Conference Provost Fellow.

College of
ARCHITECTURE, ART
AND CONSTRUCTION

Eric A. Morris, Ph.D.

Professor

Richard A. McMahan School of Architecture

Morris is a professor of city and regional planning. His primary focus is on how transportation and urbanization contribute to our activity patterns, access to opportunities, well-being and quality of life. He also conducts research in the field of transportation history, and his co-authored book, "The Drive for Dollars: How Fiscal Politics Shaped Urban Freeways and Transformed American Cities," has recently been published by Oxford University Press.

Other interests include transportation equity, shared mobility, transportation finance, transportation policy, transportation and the economy, goods movement and logistics and transportation and economic geography. He wrote a column on transportation for the *New York Times* for several years. He was also the associate editor of *Access* magazine and a handling editor for the *Transportation Research Record* journal.

Morris teaches courses on transportation planning, transportation and the economy, cities and technology and urban economics. Before returning to academia, he worked as a travel writer, a sportswriter and a television writer and producer.

Select Accomplishments

- CAAH Dean's Award for Excellence in Research Award, 2019.
- IPUMS (formerly Integrated Public Use Microdata Series) Research Award, 2019.
- Clemson Board of Trustees Award for Excellence, 2018.
- Association of Collegiate Schools of Planning (ACSP) Chester Rapkin Award, 2018.
- Transportation Research Board (TRB) Charley Wooten Award, 2016.
- ACSP Best Poster Award, 2010.
- American Planning Association (APA) Transportation Division Best Student Paper Award, 2006.
- Published two journal articles in the 2024-25 academic year and one book chapter.
- Earned $3.9 million in funding as part of the National Center for Transportation Cybersecurity and Resiliency (TraCR).

College of ARTS AND HUMANITIES

Charlie Kurth, Ph.D.

Professor

Philosophy and Religion

Kurth joined Clemson's Department of Philosophy and Religion a year ago, having previously held full-time, tenure-stream appointments at Washington University in St. Louis and Western Michigan University.

His research focuses on ethics, moral psychology and emotion theory. Much of this work aims to show how "negative" emotions — shame, anxiety, disgust and the like — can help make us better, happier people.

Kurth has long been interested in developing international, interdisciplinary collaborations and has held prestigious fellowships at The Centre for Ethics, Philosophy and Public Affairs at the University of St. Andrews in Scotland and, more recently, a two-year appointment at the Helsinki Collegium for Advanced Studies. He is currently the principal investigator for the Negative Emotion Research Group, an interdisciplinary collaboration that he launched with funding from the University of Helsinki in 2023.

His teaching covers a wide range of topics including introductory courses in both ethics and metaphysics, as well as advanced courses on ethical theory, biomedical ethics, virtue and moral development, the philosophy of emotion, cognitive science and the philosophy of law. He has received university-wide awards for both his research and teaching.

Before returning to school to pursue a Ph.D. in philosophy, Kurth spent three years working on Wall Street as an investment banker. While pursuing his graduate studies, he worked for Accenture as a consultant on projects for the U.S. Navy. He is a native of Washington, D.C., an ultramarathon runner and an outdoor enthusiast.

Select Accomplishments

- Has written more than two dozen academic articles.
- Authored two books, "The Anxious Mind: An Investigation into the Varieties & Virtues of Anxiety (MIT Press, 2018)" and "Emotion (Routledge, 2022)."
- Authored a third book, "Good Guilt, Bad Guilt: A Philosophical Guide to a Complicated Emotion," that is under contract with Princeton University Press.
- Has published editorial pieces in places like *The Washington Post*, *Scientific American*, *The Conversation* and *Aeon*.

College of
BEHAVIORAL, SOCIAL AND HEALTH SCIENCES

Robert B. Powell, Ph.D.

George B. Hartzog, Jr. Endowed Professor

Parks, Recreation and Tourism Management

Powell's research and outreach program focuses on informal STEM education, interpretation, protected area management and sustainable tourism and has taken him to over 45 countries and seven continents. As part of his research program, Powell has conducted multiple national studies supported by the National Science Foundation (NSF) that investigated the pedagogical approaches that most powerfully influence learning outcomes in informal STEM education for adults and youth in a range of contexts such as park education programming and environmental education school field trips.

Past research projects include investigating the effectiveness of U.S. National Park Service planning processes, community resilience in northern Vietnam to support the development of a new national park, the effectiveness of community-based conservation projects, visitor education in Antarctica, governance barriers to effective coastal zone and tourism management in Sri Lanka, and the effectiveness of the Leave No Trace and TreadLightly! outdoor ethics education programs. From his research, Powell has published more than 100 peer-reviewed journal articles. His work has been funded by many governmental agencies and foundations, including NSF, U.S. National Park Service, Institute for Museum and Library Services, National Park Foundation, Pisces Foundation and Storer Foundation.

Prior to receiving his PhD from Yale University in 2005, Bob worked for twenty years as a guide and manager of whitewater and sea kayaking ecotourism operations. Also, a former U.S. Canoe and Kayak Team member (1992-1996, ranked 13th in the World), Bob led sea kayaking tours to Antarctica, Australia, Fiji, Greece, Galapagos Islands, Everglades National Park, Guadeloupe, Costa Rica, Baja, and Alaska. He also led whitewater kayaking and rafting tours across the USA and in China, Chile, Australia, France, New Zealand, Nepal, Turkey, Grand Canyon National Park, Alaska, Canada, Mexico, Costa Rica, and Ecuador.

Select Accomplishments

- Principal Investigator of multiple NSF grants, most recently (2024) a $1.98 million grant in partnership with Virginia Tech focused on enhancing outdoor informal STEM learning for early adolescent youth.
- Awarded more than $9 million in external grants since 2005.
- Awarded the Outstanding Contributions to Research in Environmental Education Award by the North American Association for Environmental Education.
- Serves as editor for the *Journal of Interpretation Research*.
- Annually coordinates multiple leadership and professional development programs for national and state park management professionals.

Wilbur O. and Ann Powers College of
BUSINESS

Anastasia Thyroff, Ph.D.

Associate Professor

Marketing

Thyroff's research examines the intersection of markets and society, with particular emphasis on how consumers, culture, institutions and values shape and are shaped by market dynamics. Her work often engages with questions of technology, sustainability, experience and well-being, and her scholarship has been published in leading journals such as the *Journal of Business Research*, *Journal of Interactive Marketing*, *Academy of Marketing Science Review*, *Marketing Theory* and *Journal of Consumer Affairs*. Her contributions to research and teaching have been recognized with numerous awards, including Clemson University's Bradley Award for Mentoring, the Wilbur O. and Ann Powers College of Business Dean's Award for Student Engagement, and the *Journal of Consumer Affairs* Best Article Award

In addition to her research, Thyroff is the founder and faculty director of CU Insights, Clemson's student-led marketing research and insights firm supported by Clemson's Creative Inquiry program. CU Insights provides hands-on training in marketing research and consumer insights, giving students the opportunity to conduct real-world projects for organizations such as the South Carolina Children's Theatre and Clemson's own Creative Inquiry program. Students also present at research symposia, network with industry professionals and gain exposure to leading firms through the annual Marketing Research and Insights Industry Trip.

Select Accomplishments

- Thyroff, A., Kilbourne, W. E., Rapert, M., Grace, S., & Siemens, J. (forthcoming). The ripple effect of macromarketing education: Examining student knowledge, concern, behavior, and value perception. *Journal of Macromarketing*.
- Killian, G., Siemens, J., Thyroff, A., & Smith, S. (2023). Lean on me: The positive effects of brand resources and brand love during stressful life transitions. *Journal of Marketing Theory and Practice*, 32(4), 522–540.
- Hawkins, M. A. & Thyroff, A. (2023). The consumer-activity relationship and separation distress. *European Journal of Marketing*, 57(4), 930-956.

College of EDUCATION

Sonja Ardoin, Ph.D.

Associate Professor

Educational and Organizational Leadership Development

Ardoin is a learner, educator, facilitator and author. Proud of her rural hometown of Vidrine, La., her working-class, Cajun roots and her first-generation college student-to-Ph.D. journey, Ardoin holds degrees from LSU, Florida State and NC State. She joined the Clemson College of Education faculty in Fall 2022, drawn to the dynamic team of faculty colleagues, the national reputation of the Higher Education and Student Affairs master's program and the opportunity to teach and advise Ph.D. students in educational leadership.

Ardoin's career has been centered around creating smoother pathways to and through higher education for rural students, first-generation college students and students from poor and working-class backgrounds. Her work also focuses on higher education employees' experience, examining how to effectively prepare for, find success in or transition out of the field. She has contributed 69 peer-reviewed publications, including seven books, one monograph, 26 journal articles and 35 book chapters. She is also committed to sharing her research to a multitude of audiences, particularly higher education administrators who can apply the findings in practice. Accordingly, she has facilitated more than 370 presentations and addresses at national conferences, higher education institutions and other professional gatherings and delivered keynote addresses or invited talks at more than 100 different higher education institutions and related organizations, including Arizona State University, Boston University, Columbia University's Teachers College, Duke University, Penn State University, Stony Brook University, Texas A&M University, University of Illinois Urbana-Champaign, University of Minnesota, University of North Carolina at Chapel Hill and Vanderbilt University. A nationally renowned expert in her field, Sonja has been invited to serve on several high-profile advisory boards for nonprofit organizations, such as FirstGen Forward, LeaderShape and the Association for Fraternal Leadership and Values, and she has been honored with 16 international awards, two regional awards, one state award and 14 institutional awards.

Select Accomplishments

- Awarded as an Emerging Scholar by both the College Student Educators International and the Student Affairs Administrators in Higher Education.
- Honored with both the Student Affairs Administrators in Higher Education Faculty Early-Career and Mid-Career Awards for contributions across research, teaching and service.
- Contributed public scholarship featured in *NPR*, *Inside Higher Ed*, *The Chronicle of Higher Education*, and *Diverse Issues*.

College of
ENGINEERING, COMPUTING
AND APPLIED SCIENCES

Mik Carbajales-Dale, Ph.D.

Professor

Environmental Engineering and Earth Sciences

Carbajales-Dale is a professor with the Department of Environmental Engineering and Earth Sciences at Clemson University and the director of the Energy-Economy-Environment Systems Analysis (E3SA) research group. Before joining Clemson University as an assistant professor in 2014, he was a postdoctoral scholar with the Global Climate & Energy Project at Stanford University.

The E3SA research group's mission is to building decision-support tools to reduce the environmental impacts of technology systems and to understand the structural transformation necessary to navigate a peaceful transition to a prosperous and sustainable future.

His research has been continuously supported by U.S. Department of Energy, Advanced Research Projects Agency-Energy (ARPA-e), U.S. Department of Agriculture (USDA), National Science Foundation (NSF), Nuclear Regulatory Commission (NRC), S.C. SeaGrant, NASA, Department of Education and Environmental Protection Agency (EPA). He has been principal investigator (PI) or Co-PI on more than $30 million in funding.

Carbajales-Dale is the author/co-author of more than 60 peer-reviewed publications, which have been cited over 4,000 times.

Select Accomplishments

- Serves as PI on two recent fusion energy awards with partners from SRNL, other national labs and universities and private industry to evaluate the economic and environmental viability of fusion energy.
- Served as a faculty senator from 2022 to 2025, serving on the Policy Committee, as well as serving as the Lead Senator for CECAS last year (2024-2025).
- Has two recent publications in *Nature* portfolio journals: one in *Nature Communications Earth & Environment* comparing the environmental impacts from electric and internal combustion engine vehicles, and the other in *Nature Scientific Data* on electricity use in big area additive manufacturing.
- Has been the chief editor of the *Frontiers in Energy Research Sustainable Energy Systems* section since 2013.
- Has served as a member of the Technical Committee of the American Center for Life Cycle Assessment (ACLCA) since 2019.
- Served as director of the Clemson Industrial Assessment Center, which conducted over 60 energy audits for manufacturing companies across the state, making energy-saving recommendations totaling $5.2 million and saving around 40,000 tons of CO2 emissions.

College of
SCIENCE

David R. Jacobson, Ph.D.

Assitant Professor

Chemistry

Jacobson is a biophysicist whose laboratory develops and employs advanced experimental techniques to study membrane proteins by manipulating them one molecule at a time. Proteins embedded in the cell membrane are of great importance in biology (they make up 30% of all human proteins) and medicine (they are the targets of 50% of current drugs). Yet, because they exist in the complicated chemical environment of the cell membrane, they are difficult to study using classic biochemical techniques. As a postdoctoral researcher at JILA (a research institution affiliated with NIST and the University of Colorado, Boulder), Jacobson was instrumental in demonstrating that the driving forces of membrane-protein structure formation and interactions could be measured using single-molecule biophysics experiments. In these studies, the protein is probed by a mechanical pulling force applied using an atomic force microscope (AFM). The central idea of the experiments is that the strengths of interactions in the protein are related to how much force one has to apply in order to disrupt them.

Jacobson performed these early demonstration studies using a famous, widely studied bacterial membrane protein, bacteriorhodopsin. His goal, though, was to use the same kinds of AFM-based single-molecule experiments to probe other proteins with the dual goals of learning more about the fundamental biology of membrane proteins and understanding the causes of diseases linked to membrane-protein mutations. To that end, while a postdoc in 2021, he received the $920,000 “Pathway to Independence” Award from the National Institutes of Health, which funded the conclusion of his postdoctoral projects and the first three years of his independent work at Clemson on understanding the biophysical connections between a human protein, vasopressin receptor 2, and a related disease of kidney function, diabetes insipidus. Arriving in January 2023, he was the first new faculty member to come to Clemson with this prestigious award.

Select Accomplishments

- National Science Foundation (NSF) CAREER Award winner in 2025.
- National Institutes of Health (NIH) K99/R00 “Pathway to Independence” Award in 2021 (Clemson phase began in 2023).
- Invited to write a review of single-molecule membrane-protein studies for the highly cited journal *Chemical Reviews* (currently in peer review).
- Currently advising five graduate students, four in the chemistry Ph.D. program and one in the medical biophysics Ph.D. program, as well as two undergraduate students.

Division of RESEARCH

Quarterly Research Report

October 2025