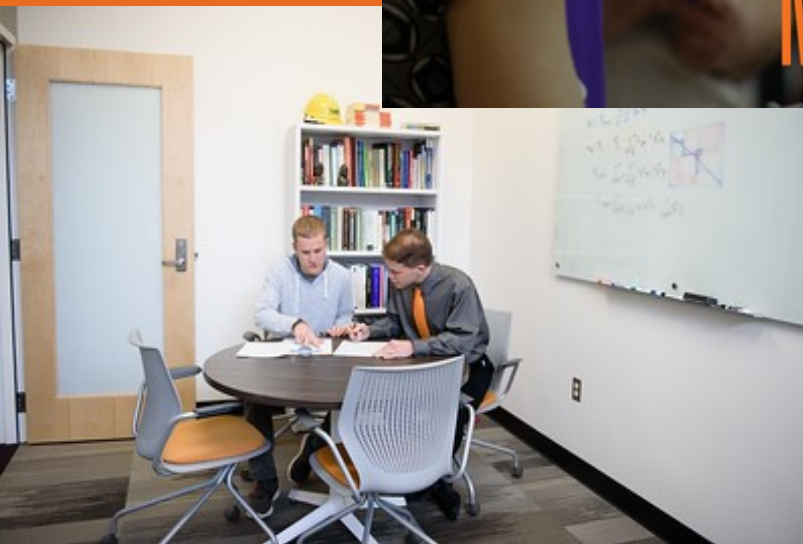


RESEARCH AND ECONOMIC DEVELOPMENT COMMITTEE

Board of Trustees—April 19, 2018



University Research Report

- Carnegie Research Rankings Update
- Focus on Faculty
- Focus on Young Faculty
- Research Metrics
- Significant Awards

2018 Carnegie Update

Data for Carnegie Research Metrics are now available for 2017. In this section we present a review of Clemson metrics and analysis.

2018 Carnegie Update

- Clemson University continues to improve in each of the 10 Carnegie metrics (**Table, Page 2**) used to determine universities' basic category (i.e., Doctoral University, Highest Research also known as R1 status). Clemson's values for each metric have been updated to include Clemson University's 2018 data.
 - Clemson continues to move in a positive direction for each of the 10 Carnegie metrics in terms of absolute values (e.g., science and engineering expenditures in terms of dollars or STEM graduations in terms of numbers of graduates)
 - Ranking information is only obtainable when the information from other universities is made public. 2017 is the most recent year for publically available data for tracking Clemson University's rank compared to peers. Clemson has moved up in rankings compared to its 115 R1 peers (rankings are numbered with the lowest number representing the highest rank). Clemson has moved up in seven of the ten ranking metrics. The most positive movement included the addition of postdoctoral fellows and non-faculty research staff. Clemson also gained significant ground in rankings due to increasing doctoral completions, particularly in the social sciences (psychology and economics). Despite growth in absolute values, Clemson has lost small ground in three of the rankings (i.e., non-science and engineering expenditures, doctoral STEM completions, and per-capita non-science and engineering expenditures). Clemson's rank in these metrics is already high; some variability, sometimes small negative or positive values, in rank is to be expected.
 - Clemson University has continued to climb in its average ranking (i.e., average of 10 metrics) from an average rank in 2014 of 101 to an average rank in 2017 of 92.
- Carnegie has recently announced it will move to a 3-year update schedule of the Carnegie Classifications (**Figure, Page 3**). This update in schedule moves the next publication of institutional classifications from early 2021 to late 2018. This change in timeline also shifts the timing of data collection from 2019 to 2017. Clemson University's data to be used in the next series of classifications has already been submitted to reporting agencies like the NSF and the Department of Education. Despite changes due to positive research growth patterns in the past two to three years, we are confident Clemson will remain an R1 university, unless Carnegie significantly changes its calculation methodology.
- Carnegie has also announced that it is shifting some of its methodology regarding which doctoral completions are counted (**Figure, Page 4**). In addition to the current doctoral completions counted as part of the Basic Categorization, Carnegie plans to add a fifth category of doctoral completions, Professional Practice doctoral degrees (e.g., JD, MD, PharmD, D.Div) degrees will now be added to STEM, Humanities, Social Science and Other doctoral degrees.
 - Clemson University currently offers one doctoral degree in professional practice, Ph.D. in Nursing Practice.
 - This change will likely increase the numbers of universities currently counted as "Doctoral Universities" to include institutions formerly included in the "Master's Colleges and Universities"
- We will discuss Carnegie's methodology and a model of the methodology in the April RED committee meeting.

2018 Carnegie Update

Metrics	Clemson 2015	Clemson Rank R1 & R2 (n=222)	Clemson 2016	Clemson Rank R1 & R2 (n=222)	Clemson 2017	Clemson Rank R1 & R2 (n=222)	Clemson 2018	Δ Metric 2015 to 2018	Δ Rank 2015 to 2017
1 S&E Exp	\$116,871,000	114	\$120,858,000	114	\$133,342,000	110	\$144,728,000	+\$27,857,000	+ 4
2 non-S&E Exp	\$44,199,000	16	\$50,375,000	16	\$50,623,000	18	\$48,540,000	+\$4,341,000	- 2
3 Postdoc & Non Fac Res.	65	131	91	120	97	116	111	+46	+ 15
4 PhD Humanities	2	160	3	161	5	145	8	+6	+ 15
5 PhD Social Sciences	9	151	16	136	19	119	19	+10	+ 32
6 PhD STEM	143	63	159	49	149	71	156	+13	- 8
7 PhD Other	62	86	59	95	62	82	48	-14	+ 4
8 Per Cap S&E Exp	\$136,532	125	\$136,563	128	\$151,181	120	\$159,568	+\$23,036	+ 5
9 Per Cap non-S&E Exp	\$51,634	6	\$56,901	8	\$57,396	8	\$53,517	+\$1,883	- 2
10 Per Cap Postdoc & Non Fac Res.	0.0759	158	0.1028	137	0.1100	132	0.122	+0.0461	+ 26

Average rank= 101

Average rank= 92

2018 Carnegie Update

Current Carnegie Publication Schedule 5-Year Cycle:



New Carnegie Publication Schedule 3-Year Cycle:



2018 Carnegie Update

Proposed Method



2017 CLEMSON DOCTORAL COMPLETIONS:
STEM: 148
Humanities: 6
Social Sciences: 14
Other: 65

Examples: MD, JD, PharmD, D.Div

2017 CLEMSON DOCTORAL COMPLETIONS:
STEM: 148
Humanities: 6
Social Sciences: 14
Other: 65
Professional Practice: 0*

*Clemson offers one doctorate in professional practice, PhD in Nursing Practice. Graduates from this program will be counted as "Professional Practice"

Focus on Faculty

College by College - Notable Faculty Achievements - Dollars alone do not give a complete indication of institutional research and scholarly productivity. National awards and quality publications also contribute to faculty and institutional reputation. Each college was requested to send a brief write-up of three top faculty with high research and scholarly productivity. This section includes the write-ups received.

College of Agriculture, Forestry and Life Sciences



Gregory Batt, PhD
Assistant Professor
Food, Nutrition and Packaging Science

Gregory Batt serves as the Director of the *Sonoco Package Testing Laboratory* which supports undergraduate labs, graduate student research, and industry service projects. He also serves as the Chair of the Technical Division at the International Safe Transit Association and holds a seat on their Global Board of Directors. His research interests are in experimental test development and dynamic modeling. He also conducts research on triboelectric energy harvesters that convert mechanical energy to electrical energy, which is collected and used to charge rechargeable energy cells to power small electronic devices.

Batt began his work at Clemson University in 2001 as a Laboratory Technologist. He progressed through the ranks serving as Lecturer, Senior Lecturer, Instructor, and currently as an Assistant Professor.

Selected List of Accomplishments:

- National Science Foundation grant for \$497,286 for Collaborative Research: Multiscale Modeling of Triboelectric Devices
- His work on triboelectric generators will provide the foundation for technology for smart packages that can harvest their own power. Research featured in FOX News interview, December 2016/ ISTA Views Newsletter / WSPA channel 7 news story / Three local newspaper articles / CU video picked up by 31 news outlets nationwide
- Lab fee funding to develop Corrugated/Paperboard Teaching Lab, \$132,925
- Brooks Sports Science Institute, Quantifying the Impact Performance of Football Helmet Facemasks, \$49,188
- Member of the Editorial Board for the Journal of Packaging Science and Technology and serve as reviewer for several packaging related journals.
- Invited technical committee member and session chair for the 28th IAPRI Symposium on Packaging, Lausanne, Switzerland, May 2017.
- Developed an experimental method to capture the nonlinear frequency response of cushion materials.



Juan Carlos Melgar, PhD
Assistant Professor
Plant and Environmental
Sciences

Juan Carlos Melgar is a horticulturist and fruit tree physiologist whose research goal is to solve critical needs in tree fruit production, and to advance in scientific knowledge in tree physiology. He is very passionate about advising students so that they can become outstanding professionals to meet the needs of the future agricultural industry.

His research focuses on sustainable practices that can lead to optimal use of inputs and conservation of natural resources in the agricultural system, including optimization of nutritional and water management in fruit tree orchards, variety evaluations, and horticultural practices that increase the value of agricultural products, as well as on the impact of climate variability on tree physiological responses. He conducts his research in commercial orchards throughout South Carolina, as well as at the Clemson University Musser Fruit Research Farm. Current research projects are supported by three different agencies from the US Department of Agriculture, SC EPSCoR/IDeA, Southern SARE, SC Peach Council and the Clemson Caribbean Initiative. He supports peach growers with site visits and grower meetings, manages two websites [“Clemson University-Variety Evaluations” (www.clemsonpeach.org) and “About Peaches (www.clemson.edu/extension/peach)], and organizes the annual Musser Farm Field Day. Even though Dr. Melgar does not have a teaching appointment, he taught part of the course “Just Fruits” in 2016. He serves as an alternate senator for CAFLS and as a member of several committees at the American Society for Horticultural Science (ASHS) and Southern Region ASHS. Currently his research lab consists of one doctoral student, two Master’s students, and one undergraduate research intern.

Selected List of Accomplishments:

- Active funded projects as PI include grants from USDA-NIFA (\$999,772), USDA-ARS (\$22,480), USDA-NRCS (\$74,972), Southern SARE (\$16,441), SC EPSCoR/IDeA (\$8,746), SC Peach Council (\$9,000), and the Clemson Caribbean Initiative (\$10,000). He is also a Co-PI in another USDA-NIFA grant (\$546, 210).
- Published 3 peer-reviewed journal articles in 2017, has one submitted already in 2018.
- Several of his students have been awarded for their communications in regional and national conferences, including Ph.D. poster competition (1st place) and Three-Minute Thesis competition (2nd place) at the ASHS Annual Conference in 2016, Ph.D. and undergraduate student oral communications at the Southern Region ASHS in 2016 (3rd place, Ph.D.) and 2018 (2nd place, Ph.D.; 3rd place undergraduate student).
- Collaborated with Partners of the America’s USAID-funded Farmer-to-Farmer program in an assignment on mineral nutrition of fruit trees in Guatemala in 2017
- Quoted twice in the New York Times “The South Faces a Summer with Fewer Peaches” in 2017 and “When is Peach Season. It’s a bit fuzzy” in 2016.



Kristine Vernon, PhD
Associate Professor
Animal and Veterinary Sciences

Kristine Vernon is an animal scientist who studies equine physiology related to equine joint health, rider-horse interactions and biomechanics, and equitation science. Her primary role for Clemson University is to coordinate the Equine Business concentration of the Animal and Veterinary Sciences major and to teach classes to support this degree program. Vernon also serves as the Director of the Clemson University Equine Center, and is the SC 4-H Horse Specialist. Vernon has collaborated with faculty in a variety of disciplines for research and student projects. Recent collaborators include faculty in Clemson's Architecture, Landscape Architecture, Agricultural Education, Biological Sciences, Bioengineering and Recreation Therapy programs. Vernon has directed a number of undergraduate and graduate student research projects and graduate committees. Her students have competed at national scientific conferences, and one of her Master's students was the 2015 Equine Science Society's exercise science section graduate competition winner. She is the faculty advisor for the Clemson University Equestrian Team, who enjoy a national reputation for their competitiveness in Intercollegiate Horse Show Association competitions on a national level. She is currently the lead faculty senator for CAFLS, and is the immediate past chairperson for the Eastern National 4-H Horse Roundup (2015-2017).

Selected List of Accomplishments:

- 2 peer-reviewed journal publications in 2017-2018 academic year; 1 additional publication accepted pending final revisions; 1 accepted abstract for oral presentation at 2018 NACTA conference
- Recent grant awardee (Co-Principal Investigator) for "4-H Horse Program Curriculum Development for Horseless Horse Project." Growing 4-H in South Carolina – South Carolina 4-H Foundation
- Nominated and selected for Clemson University's NSF Advance: Trailblazers – Tigers Advance program; a Provost's Leadership Initiative; 2017-2018 academic year
- 2017 Outstanding Extension Specialist Award winner - South Carolina Association of Extension 4-H Agents
- Production and Management Subcommittee member, Equine Science Society – (2012-present); section moderator and reviewer
- Facilitated and supervised significant infrastructure improvements at the CU Equine Center including a new barn (2016); fencing (2015-present); arena (2015) and stalls (2014) - ~\$250,000 in capital improvements
- Generated more than \$800,000 in revenue to support the SC 4-H Horse Project, student activities and the CU Equine Center in last 5 years
- Secured > \$275,000 in Creative Inquiry funding, gifts and gift-in-kind to support student research and activities, the SC 4-H Horse Project, and the CUEC
- Coached SC 4-H Horse project members to win national championships in Horse Bowl (2015) and Hippology (2014), and 2nd in horse judging (2013) and individual presentation (illustrated talk; 2016)

College of Architecture, Arts and Humanities



Toshiko Kishimoto, MEd
Professor Emeritus
Japanese

Toshiko Kishimoto started the Japanese program at Clemson in 1988. She has been coordinating the program since then. She teaches all levels of Japanese, but mainly 300 and 400 levels. Her primary research interests are Japanese pedagogy, Japanese business culture and heritage Japanese language. Her recent publications include: chapter 3 of Japanese Language for Professional Purpose (2010) and chapter 7 of Japanese Children in the United States: Light and Shadow of Bilingualism (2008). Her contribution to Curriculum Development of Business Japanese (2012), chapter 4, is upcoming. She has served as CLIP director since 2006.

She received the Excellence Award in Teaching by Clemson University Student Government in 2008. She was also recognized by the Consulate General of Japan in Atlanta for her contribution to US-Japan relations, especially for her efforts as founder and principal of the Japanese Saturday School in Greenville, SC. Kishimoto joined the Clemson faculty in 1988, establishing the Japanese language program at the University. She was instrumental in developing the Japanese language major, as well as the Japanese track of Clemson's language and international trade major. Throughout her career, Kishimoto has been recognized for her teaching, for leading Clemson Creative Inquiry groups and for offering Clemson students countless opportunities to immerse themselves in Japanese language and culture, both here and abroad.

Selected List of Accomplishments:

- Toshiko Kishimoto, associate professor emerita of languages
- Awarded a national medal of distinction — the Order of the Sacred Treasure, Gold and Silver Rays Medal — by the Emperor of Japan in a ceremony at the Royal Palace in Tokyo.
- An honorable certificate signed by Japanese Prime Minister Shinzo Abe also was presented to Kishimoto for her longtime efforts to promote Japanese language and culture, especially in the United States.
- Toshiko Kishimoto wears the Order of the Sacred Treasure, Gold and Silver Rays medal.



Michael LeMahieu, PhD
Associate Professor
English

Michael LeMahieu is the author of *Fictions of Fact and Value: The Erasure of Logical Positivism in American Literature, 1945-1975* (Oxford University Press, 2013), reviewed in *American Literature*, *College Literature*, *Textual Practice*, *The Year's Work in English Studies*, and *Twentieth-Century Literature*. With Karen Zumhagen-Yekplé, LeMahieu co-edited *Wittgenstein and Modernism* (University of Chicago Press, 2017). He is currently writing a book on Civil War memory in U.S. literature from the civil rights movement to the contemporary moment. LeMahieu is coeditor of the journal *Contemporary Literature*.

Selected List of Accomplishments:

- LeMahieu has won an ACLS award for the Academic Year, for which he will receive \$50,000.
- The American Council of Learned Societies (ACLS) accepts research proposals from scholars in all disciplines in the humanities and related social sciences, awarding fellowships to enable scholars to have 6-12 continuous months of full-time research and writing toward a major piece of scholarly work.
- Awarded the fellowship to work on a book manuscript titled *Post-54: Reconstructing Civil War Memory in American Literature after Brown v. Board of Education*. This year the ACLS received nearly 1,200 applications for 78 awards (approximately 25 each at the ranks of assistant, associate, and full professor), making him one of less than 7% of applicants for this national honor. The last time a Clemson faculty member won an ACLS Fellowship was 25 years ago in 1993. More information can be found on the ACLS website.



Rhondda Thomas, PhD
Associate Professor
English

Rhondda Thomas's research and teaching interests 19th-century African American literature and culture, politics of black identity, autobiographical scholarship, African American literature and the Bible, race and culture studies, African American historiography, migration narratives, and African American women writers.

Selected List of Accomplishments:

- Thomas received a significant Public Humanities Fellowship (\$50,000) for her work on engaging the community with her "Black Clemson: From Enslavement to Integration" project. <https://www.whiting.org/scholars/public-engagement-programs/fellowship/browse> African Americans have been an integral part of the history of Clemson, South Carolina, and of the university housed there since its founding. For Rhondda Thomas, the town – once named Calhoun after the proslavery American statesman who owned a plantation at its heart – serves as a sort of microcosm of the Black experience in America over time. She will use the Fellowship to create Black Clemson, a traveling museum exhibition, and design a series of public events illuminating this history. The project builds on Thomas's ongoing Call My Name initiative, which has digitized over 2,000 primary documents related to early Clemson history, including slave inventories, prison records, labor contracts, photographs, and correspondence. The new exhibition, designed alongside a team of community collaborators, will draw on this trove to tell the stories of enslaved people, sharecroppers, convict laborers, wage workers, and Clemson students, faculty, and staff as well as community institutions including churches, schools, and the Littlejohn's Grill nightclub-restaurant-hotel, where musicians such as James Brown and the Supremes performed. As Black Clemson travels to ten sites across South Carolina over two years, Thomas will partner with local organizations on events to publicize and discuss the histories it presents, creating spaces where visitors can engage with the richness of this vital piece of American history.

College of Behavioral, Social and Health Sciences



Adam L. Warber, PhD
Professor
Director of Undergraduate Studies
Reviews & Book Editor,
Congress & the Presidency
Political Science

Adam Warber is a professor of political science. He earned his Ph.D. (2002) in political science from Texas A&M University. His main area of expertise is the American presidency in which his research focuses on the unilateral powers of the president and the administrative presidency. Specifically, he assesses how presidents make public policy by circumventing Congress through a variety of unilateral powers and policy tools, and how they use administrative tools to influence and control the federal bureaucracy in relation to the policymaking process. Warber has written extensively on one type of unilateral tool, presidential executive orders, and he is considered to be one of the country's leading experts on this presidential power. In addition, he has written pieces on presidential appointments, the president's cabinet, and regarding religion and the American presidency.

Selected List of Accomplishments:

- Reviews & Book Editor for the *Congress & the Presidency* journal beginning in 2017
- Undergraduate classes include *The American Presidency*, *Public Policy*, *Quantitative Methods in Political Science*, and *American National Government*.
- Teaches the *Policy Analysis Seminar I and II* graduate seminars in the Ph.D. *Policy Studies* program and mentors doctoral students
- Coauthor of "Landmark Executive Orders: Presidential Leadership Through Unilateral Action" published in *Presidential Studies Quarterly* (March 2018)
- Working on study with Dr. Andrew Rudalevige (Bowdoin College), Dr. Sharece Thrower (Vanderbilt University), and Dr. Rachel Potter (University of Virginia) regarding the unilateral presidency of the Donald Trump administration
- Author of the book, *Executive Orders and the Modern Presidency: Legislating from the Oval Office*, which is the first study that has content analyzed and assessed the policy substance of all published executive orders signed by presidents from 1936-2008 (Franklin Roosevelt through George W. Bush)
- Director of Undergraduate Studies in the Department of Political Science
- Book and journal manuscript reviewer for numerous publisher
- Selected Media Interviews: CBS News; *The Christian Science Monitor*; CNN; *The Economist*; Kyodo; *National Law Journal*; *National Public Radio (NPR)*; and *U.S. News & World Report*



Cynthia L. S. Pury, PhD
Professor & Undergraduate Coordinator
Psychology

Cynthia Pury is a professor in the Department of Psychology. Her doctoral work was in clinical and personality psychology, with additional clinical training specializing in PTSD and anxiety disorders. Cindy's areas of research expertise are in the psychology of courage, virtue psychology, and positive psychology. Her largest area of research focuses on her theory of courage as *taking a worthwhile risk* and its implications for individuals, organizations, and society. She has recently begun projects in other areas of positive psychology, most notably awe at natural events such as the 2017 Great American Solar Eclipse (with Job Chen), and accolade virtue, or the process by which we admire a virtuous person or action (with Charles Starkey). Cindy also coordinates the undergraduate BA and BS programs for the Department of Psychology and manages course registration for all of the 230+ sections offered by the department. As part of her effort to improve her own large-classroom teaching, she's recently started incorporating performing arts strategies into her lectures, including skills she's developed as a ballroom dancer and as a company member in Alchemy Comedy (a project of several Clemson Mock Turtle Soup alumni).

Selected List of Accomplishments:

- Author or coauthor of 21 published peer-reviewed articles or chapters on the psychology of courage and 30 peer-reviewed articles or chapters in other areas of psychology
- Editor (with co-editor Shane Lopez) of the psychology of courage: Modern research on an ancient virtue. Published by the American Psychological Association, 2010
- Co-investigator (PI: Thomas Britt, 2010 -13): Facilitating Soldier Receipt of Needed Mental Health Treatment; Sponsored by the US Army Medical Research \$1,152,019.00
- Associate Editor, Journal of Positive Psychology
- Editor of the Journal of Positive Psychology's Special Issue on Leisure (with co-editor Dart Schmalz)
- Developed scoring and item response analysis spreadsheets for department scantrons
- Department Participant Pool Coordinator, University Grievance Board (current) and a variety of other university, college, and departmental committees
- Consultant to the National Civil Rights Museum and the US State Department
- Interviewed by national and international print and broadcast journalists about various topics related to her research - usually courage, including Psychology Today, the BBC, Men's Health, The Weather Channel, and many others



Jasmine A. Townsend, PhD, CTRS
Assistant Professor
Program Coordinator
Recreational Therapy
Parks, Recreation, and Tourism Management

Jasmine Townsend's primary research interest includes investigating the outcomes of participation in recreation for families of all types, including those with members with disabilities. Her current research area focuses on the health outcomes of recreational therapy for military service members and their families, and understanding the influences of family leisure involvement on the well-being of military families. Dr. Townsend's practical experience as a recreational therapist includes working in community adaptive sports and therapeutic recreation programs, in wilderness and residential treatment programs for youth with behavioral and mental health conditions, and implementing international adaptive sport training programs in countries including Indonesia, Mexico, and Thailand. She is actively engaged in presenting and publishing research in these areas, is a Faculty Scholar in the School of Health Research, and the coordinator for the Master's Degree Program in Recreational Therapy.

Selected List of Accomplishments:

- 2017 Emerging Scholar – American Therapeutic Recreation Association
- 2016-2018 Clemson University School of Health Research Faculty Scholar
- Adaptive Sports & Recreation (new course in Fall 2018)
- Applied Research Methods in Recreational Therapy
- Program Development & Consulting in Recreational Therapy
- Data Analysis and Statistics for PRTM
- Research Practicum for Recreational Therapy
- Residency 1 for Online Ph.D. in Recreational Therapy
- Residency 2 for Online Ph.D. in Recreational Therapy
- Residency 3 for Online Ph.D. in Recreational Therapy
- Principle investigator on Adaptive Sports for Social Change: An International Adaptive Sports Training in Thailand (U.S. Department of State)
- Principle investigator on a project examining the influences of family leisure involvement on the family communication, satisfaction, and reintegration of military families (URGC Award)
- Co-investigator on adaptive/paralympic soccer programming grant (VA Adaptive Sport grant, funded twice)
- Received \$44,500 from Undergraduate Student Senate to start a wheelchair sports league in Intramurals/Campus Recreation, will study how adaptive sports changes campus-wide attitudes towards individuals with disabilities.
- Co-chair for the Veterans Affairs section of the American Journal of Recreation Therapy
- Co-chair for the Research Institute of the American Therapeutic Recreation Association's annual national conference
- Associate Editor for Therapeutic Recreation Journal

College of Business



Derek W. Dalton, PhD, CPA (IA)
Associate Professor
School of Accountancy

Derek Dalton is an associate professor in the School of Accountancy. Dalton's research focuses on work-life balance and turnover issues in the accounting profession. According to the American Institute of Certified Public Accountants (AICPA), two of the top issues facing the accounting profession involve employee turnover and work-life balance issues. As such, Dalton examines these issues in order to find practical solutions for public accounting firms seeking to improve the well-being and retention of their employees.

Dalton teaches graduate classes in corporate taxation and MBA classes in managerial accounting. In his corporate taxation course, he prepares his students for future careers as tax professionals, and in his MBA courses, he strives to provide practical accounting knowledge that working professionals can integrate into their careers. In total, Dalton believes in the importance of research that provides practical implications for the accounting profession, and he thoroughly enjoys teaching the practical nature of both corporate taxation and managerial accounting.

Selected List of Accomplishments:

- From 2012-2018, Dalton is ranked 57th out of over 5,600 accounting professors in terms of publications in the top 15 accounting journals, as compiled at www.byuaccounting.net.
- From 2016-current, Dalton has served as the Vice President of Research for the Gender Issues and Work-Life Balance Section of the American Accounting Association.
- Dalton is a member of the editorial board at *Auditing: A Journal of Practice & Theory*, a section-level journal of the American Accounting Association.
- Dalton is a member of the editorial board at *Accounting and the Public Interest*, a section-level journal of the American Accounting Association.
- Dalton served as the 2016 coordinator of the Accounting Behavior and Organizations meeting.
- Dalton received both the 2014 and 2015 KPMG Best Paper Award for the Gender Issues and Work-Life Balance Section of the American Accounting Association.
- Dalton received the College of Business 2014 Emerging Scholar Research Award.



Robert Tamura, PhD
Professor
Economics

Robert Tamura is a Professor in the John E Walker Department of Economics. He earned a PhD in Economics from the University of Chicago in 1988. Prior his arrival at Clemson, he was an assistant Professor at the University of Iowa. Tamura also served as the William E. Simon Distinguished Visiting Professor at Pepperdine University in 2011. He was a visiting scholar at the Federal Reserve Bank of Atlanta from 1997-2012, a Fellow at the Hoover Institute in 1993-1994, and a National

Bureau of Economic Research Fellow from 1989-1993.

Tamura's research interests focus primarily on economic growth and how human capital and education can account for the observed cross-country differences in the standard of living. His paper on economic growth, human capital and population growth, with Gary Becker and Kevin Murphy, has been cited nearly 3,000 times according to Google Scholar. His joint work with Clemson colleagues Scott Baier and Gerald Dwyer, "How Important are Capital and Total Factor Productivity for Economic Growth" received recognition as the best article in *Economic Inquiry*. More recently, Robert's research has investigated how education and human capital accumulation differences can account for differences in economic outcomes over time in the United States.

Selected List of Accomplishments:

- Tamura has published nearly 30 papers. His research has been cited more than 5000 times according to Google Scholar.
- In addition to his work on human capital growth and development, Tamura has also written and published on the impacts of banking crises on recessions and long-run economic growth.
- Along with Clemson colleague Curtis Simon, he has also written and published several papers on urbanization and how urbanization impacts fertility rates.
- Tamura has taught economics classes at all levels at Clemson. He has taught undergraduate growth, price theory, and Behavioral Economics. He has MBA courses as Master's level development courses, and he teaches Ph.D. level courses as well.
- While at Clemson, he has served as the Chair or Reader on nearly 20 Ph.D. dissertations since.



Thomas J. Zagenczyk, PhD
Professor
Department of Management

Tom Zagenczyk (PhD, University of Pittsburgh, 2006) teaches graduate and undergraduate courses in Organizational Behavior, Influence and Negotiation, and Creativity. His research, which explores workplace social networks, abusive supervision, leadership, and organizational support, has resulted in more than more than 35 refereed journal publications, including nine articles in Financial Times 50 outlets (Journal of Applied Psychology (3), Organizational Behavior and Human Decision Processes, Journal of Management (2), Journal of Management Studies (2), and MIS Quarterly). Zagenczyk is an Associate Editor for Group & Organization Management and serves on the editorial boards of several major journals. He has been a co-PI or contributor to more than \$8 million in grants sponsored by the National Science Foundation and the Australian Research Council. Zagenczyk was awarded the Management Professor of Excellence Award, the College of Business and Behavioral Science Emerging Research Scholar Award, the College of Business and Behavioral Science Graduate Teaching Excellence Award, and the MBA Professor of the Year Award. Tom serves as chair of the MBA Council and is a fellow in the Rutland Institute for Ethics. He also provides courses or training for Michelin North America, the Australian Defence College, and the Greenville Society for Human Resource Management, among others.

Selected List of Accomplishments:

- Management Professor of Excellence Award (2016, 2017)
- Southern Management Association Best Paper Award, Organizational Behavior Track, 2017
- Feature story in Clemson World, Spring 2017: “Behaving Badly: Professors Probe Behavior at its Worst in the Workplace”
- Nominee, 2016 Governor’s Award, Young Researcher Award for Excellence in Scientific Research, State of South Carolina
- Co-PI. Clemson Tigers Advance: Transforming the institution through gender equity, retention and support. National Science Foundation (\$3,395,187)
- NRT-DESE: Preparing resilient + operationally adaptive communities through an interdisciplinary, venture-based education. National Science Foundation (\$2,999,965.00)
- NSF-RED: Clemson University: Learning Teams and Innovation Ventures for Adaptable Training in Engineering. National Science Foundation (\$2,000,000)
- Discovery Grant: To Stop in or Stand By: Third Parties’ Emotional and Behavioral Responses to Abusive Supervision. Australian Research Council (\$145,300)
- Irwin-McGraw Hill Distinguished Paper Award for Best Conference Paper, Southwest Academy of Management, 2015

College of Education



Michelle L. Boettcher, PhD

Assistant Professor

Educational & Organizational Leadership Development

Michelle Boettcher's research focuses on senses of belonging and community in the context of higher education particularly as this relates to the experiences of students, faculty, and staff who are members of politically marginalized populations. Feeling a sense of connection to one's institution fosters higher levels of persistence and success academically, personally, and professionally. The ways in which individuals find themselves a belonging to something larger provide important insights in to the ways in which higher education engages individuals to create transformative change in the larger society on and beyond campus. Her publications have included studies examining the role of outdoor recreation, the experiences of student veterans, practitioner to faculty transition, and student engagement in pursuit of personal, professional, and academic success and excellence.

Selected list of Accomplishments:

- Co-editor of forthcoming book Salinas C. & Boettcher M. L., Eds. (in press). Critical perspectives on hazing in colleges and universities: A guide to disrupting hazing culture. New York, NY: Routledge/Taylor and Francis.
- Clemson University College of Education, Award of Excellence in Teaching, Clemson University, 2017
- Invited speaker on First Amendment rights and student protest: Clemson University Law Enforcement Summit, 2018
- 2016 ACUHO-I Grant Recipient (PI), The Cultivation of Support Networks by Student of Color in a Residence Hall Setting at a Predominantly White Institution
- Associate Editor, College Student Affairs Journal, the journal of the Southeastern Association for College Student Affairs
- Graduate Preparation Program Chair, South Carolina College Personnel Association, 2017-current
- Title IX Hearing Board Member for the Clemson University Office of Community and Ethical Standards, 2015-current
- E. Heyward Humanitarian Award from the South Carolina College Personnel Association.



Rebecca F. Kaminski, EdD
Senior Lecturer
Education & Human Development

Rebecca Kaminski's research focuses on improving students' writing in grades K-12. Kaminski founded the Upstate Writing Project (UWP), an affiliate of the National Writing Project (NWP), in 2001. The UWP offers an annual summer institute that has trained 300+ Teacher Consultants for SC schools. In 2016, she established the Clemson Center of Research for Writing and Literacy (CRWL). Kaminski's recent work has been driven by her commitment to improve the teaching of academic writing and college readiness in South Carolina's highest need school districts. In 2013-2016, Kaminski partnered with 6 rural school districts across the state. The College Career Ready Writing Program (CRWP) provided effective professional development that changed teacher practices and improved the argument writing of students in grades 6-12. Kaminski has just received a new 5-year grant College, Career, and Community Writers Program (C3WP) that will extend her work into 4 additional rural school districts along the I-95 corridor. Her goal is to assure more teachers have the ability to teach college and career-ready writing with a specific emphasis on writing arguments based on nonfiction texts; an important skill every young adult needs. Kaminski has published several articles on her work in major journals including the *Research in the Teaching of English*, *Professional Development in Education*, *The Journal of Literacy and Technology* and *Journal of Research in Rural Education*.

Selected list of Accomplishments:

- PI (\$ 996,000) i3 College-Ready Writers Program Evaluation Grant, funded 2013-2016
- PI (\$55,000) NWP SEED Teacher Leadership Development Grants, funded 2016-2018
- PI (\$20,000) NWP SEED College-Ready Writers Program High Need Professional Development at Greer MS, funded 2017-18
- PI (\$20,000) i3 C3WP Advanced Institute Grant, funded 2017-2018
- PI (\$600,000) C3WP Grant i3 Scale-up C3RWP PD at 4 High Need SC Rural School Districts, funded 2018-2021
- Founding member of Rural Centers for Writing in College, Career, and Community (RCWC³), a consortium of five Institutions of Higher Education (IHE), that propose to increase professional development equity and access to geographically isolated rural areas in the Ozarks, Delta, Appalachia, and Low Country regions.
- CO-PI USDOE SEED Grant: Rural Centers for Writing in College, Career, and Community: Developing a Rural Literacy Model -2018-2022 (estimated \$500,000/year for each of the 5 RCWC3 sites) Under Review
- Coordinator of the new online College of Ed MEd in Literacy program with 3 strands (Literacy Coach, ESOL, Secondary Literacy) Increased from 13 to 55 students in 2017.
- Published book, *Argument reading and writing strategies for middle and high school*, a practical guide for teachers written by teachers affiliated with the Upstate Writing Project.



Roy I. Jones, EdD

Professor

Educational & Organizational Leadership Development

Roy Jones' action research focuses on diversifying the K-20 public school and post-secondary educator workforce in South Carolina by developing a 'Grow-Your-Own' model designed to identify and cultivate talent latent within our own communities. The need to address the intensifying critical shortage of teachers in our state, especially among African American males, has led to the nationally recognized success of the Call Me MISTER program that he has directed since 2003 at Clemson University. Jones

and his colleagues have inspired and facilitated a statewide collaborative infrastructure among two-year technical colleges, four-year colleges, school districts and Clemson to effectively recruit and retain African American male teacher candidates. Under Jones' leadership the Call Me MISTER program has formal license agreements on 23 colleges within South Carolina and 9 in other states. He has co-authored a book entitled, *"Call Me MISTER: The Re-Emergence of African American Male Teachers in South Carolina"*. He has a manuscript currently under review by the *"Teacher Education Quarterly Journal"*. He is an invited panelist on the subject of grow-your-own programs at the American Educational Research Association (AERA) 2018 national meeting in New York. He has been a contributor to several major publications and interviewed extensively on public broadcasting programs featuring education.

Selected list of Accomplishments:

- 2018 Nominee for the Brock International Prize in Education
- In 2016-18 expanded the program to include formal license agreements (\$17,500 fees collected) with 3 in-state colleges and 2 out-of-state colleges totaling 23 in South Carolina and 9 out-of-state
- In 2016-18 proposed and received \$160,000 in gifts from private Foundations to support the program's annual summer Leadership Institute and Internship
- PI on \$1.3 million multi-year grant funded by the W.K. Kellogg Foundation in collaboration with Jackson State University completed successfully in 2017 to establish a "Pipeline" of African American male teachers in Jackson, Mississippi
- In 2018 requested and received up to \$140,000 pledge in matching funding from the Sunshine Lady Foundation if awarded a S.C. Commission on Higher Education "Center of Excellence for the Recruitment and Retention of Minority Teachers" at Clemson
- Co-PI on 2018 proposal submission to the S.C. Commission on Higher Education (RFP) to establish a "Center of Excellence for the Recruitment and Retention of Minority Teachers" at Clemson

College of Engineering, Computing and Applied Sciences



Lawrence C. Murdoch, PhD
Professor
Environmental Engineering and
Earth Sciences

Lawrence Murdoch's research interests include environmental remediation, aquifer characterization, interaction between ground water and surface water, and effects of changing land use. He developed techniques for creating and applying hydraulic fractures for environmental applications, and more recently he has been developing hydromechanical techniques for characterizing rock aquifers. Many of his projects involve innovative field or laboratory techniques with modeling coupled processes of flow, transport, and deformation.

Professor Murdoch serves as the lead Principal Investigator on more than \$3.3M in grants studying geomechanical applications in hydrogeology and carbon storage; a \$1.8 M DOE grant entitled "Robust In Situ Strain Measurements to Measure CO₂ Storage," a \$1.3M DOE grant entitled "Characterizing the In Situ Strain Tensor," and a \$275 K NSF grant entitled "Effects of Hydrologic Processes on In Situ Stress Transients." He is also a Task Leader on a \$5.25 M Department of Energy, Experimental Program to Stimulate Competitive Research Implementation Project entitled "Radionuclide Waste Disposal: Development of Multi-scale Experimental and Modeling Capabilities." Murdoch teaches courses at the undergraduate and graduate levels, including Groundwater and Contaminant Transport; Analysis of Geological Processes; Applied Process Simulation; and Aquifer Systems. In addition, Murdoch is the lead instructor for the Hydrogeology Field Camp; this highly regarded summer session course attracts students from throughout the southeast. Murdoch also serves as the graduate coordinator for the MS degree in Hydrogeology. He is one of the organizers for Clemson's annual Hydrogeology Symposium, which is attended by approximately 400 practitioners and students.

Selected List of Accomplishments:

- Murdoch has developed a large on-line following in the areas of hydrogeology and multi-physics modeling. His YouTube channel contains more than 200 instructional videos that he created and currently has more than 1000 subscribers. Murdoch's videos have been viewed 230,000 times thus far. His videos are among the top results of Google searches on basic topics in hydrogeology.
- Associate Editor for Hydrogeology Journal and Water Resources Research, premier journals in the field of hydrogeology.
- Research expenditures of ~\$360 K per year, near the top for EEES
- Approximately four publications per year.



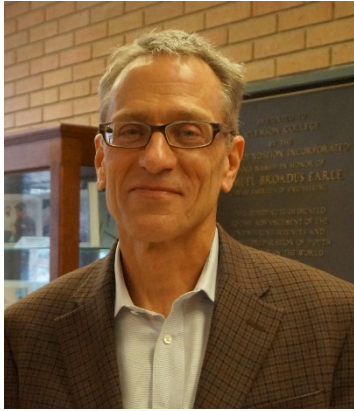
Sandra D. Eksioglu, PhD
Associate Professor
Industrial Engineering

Sandra Eksioglu's expertise is in the areas of operations research, network optimization, and algorithmic development. She uses these tools to develop models and algorithms for solving large-scale problems that arise in the areas of transportation, logistics, and supply chain. In particular, she is interested in the application of these tools to the bioenergy supply chain. Her research has been funded by the National Science Foundation via an NSF CAREER Award, the US Department of Energy, the US Department of Transportation, MS Department of Transportation, etc. She is an active member of INFORMS, IISE, and ASEE.

Eksioglu currently teaches courses in Statistics, Decision Support Systems, Transportation and Logistics Engineering, and Network Optimization, among others. In the last two years she conducted research with four undergraduate students via Creative Inquiry (CI) courses she teaches. She is the chair of dissertation committee of three PhD students and co-chair of two PhD students. Three of these students are graduating in 2018. She is a committee member of a number of PhD students in IE.

Selected List of Accomplishments:

- PI of a \$2 million research grant awarded in 2018 by US DOE.
- PI of a \$50K research grant awarded in 2018 from the Material Handling Institute.
- Co-PI of a \$1.2 million research grant awarded in 2016 by US DOE.
- Co-PI of a \$150K research grant awarded in 2016 by USDA/NIFA.
- Co-PI of a \$189K grant awarded in 2016 by USDA/NIFA.
- Co-PI of a \$80K grant awarded in 2016 by US EPA.
- Awarded the Best Application Paper, IISE Transactions Focus Issue on Scheduling and Logistics (with H. Karimi, B. Eksioglu), 2018.
- Publication was featured in the March 2018 issue of Industrial & Systems Eng. Magazine.
- Publication was featured in the Sept. 2016 issue of Industrial & Systems Eng. Magazine.
- Published 10 peer-reviewed journal articles and 6 peer-reviewed proceedings during 2016-2018.
- 27 presentations in professional conferences by her and her students during 2016-2018.
- Deputy Director of Clemson's Industrial Assessment Center.
- Served as the President/Past president of Operations Research Division, IISE, 2016-2018.
- Served as a Director, Energy Systems Division, IISE, 2016-2018.
- Served as Program Chair, WEID (Women in Engineering Education, ASEE), 2016-2018.
- Served as Chair, Doctoral Student Colloquium, INFORMS, 2017, 2018.
- Served as SIG Vice Chair, Freight Transportation and Logistics, Transportation Science and Logistics Society, INFORMS, 2017-2018.
- Served as Chair, Pritsker Doctoral Award, IISE, 2018.



Mark C. Thies, PhD, PE
Dow Chemical Professor
Chemical and Biomolecular Engineering

Mark Thies has been on the Clemson faculty since 1985, having received his Ph.D. in Chemical Engineering from University of Delaware and his B.S. from the Georgia Institute of Technology. His research efforts focus on chemical and biomolecular separations where thermodynamics and phase equilibria play a key role. The fractionation and molecular characterization of poorly defined systems with significant potential applications in energy and materials are of particular interest. An example of such a system is lignin. After cellulose, lignin is the 2nd most abundant organic compound on earth; nevertheless, lignin is typically considered to be a by-product at best and a waste stream at worst. Thus, the recovery, fractionation, and purification of lignin is a focus of current research. Applications for lignin ranging from clean-burning biofuels to energy-storage polymers to carbon-fiber precursors are being investigated.

Mark is a Fellow of the American Institute of Chemical Engineers (AIChE), an honor bestowed upon fewer than 2% of chemical engineers for their sustained and life-long contributions to AIChE and the chemical engineering profession. He has published five book chapters, four patents, and over 81 research papers. He has served as the PI or co-PI on more than 70 individual research grants worth over \$ 9 million, and has been a co-PI in the NSF-Engineering Research Center grant worth over \$ 29 million given to CAEFF (1998-2009). Prof. Thies has taught numerous graduate and undergraduate courses, including courses on Mass Transfer and Separations, Thermodynamics, and Unit Operations.

Selected List of Accomplishments:

- Elected Fellow of the American Institute of Chemical Engineers (AIChE)
- Patent on the “Solvent and Recovery Process for Lignin”, 2016.
- Clemson Principal Investigator or Co-PI on 7 grants totaling ~ \$1 million, with funding from the National Science Foundation; Petroleum Research Fund; ERC Inc.; and Lignin Enterprises, LLC.
- Refereed journal papers: 11; reviewed book chapters: 1
- Conference proceeding papers/presentations at national/international meetings: 13; Invited Speaker: 2
- Advisor and chair for 3 PhD students and graduated 1 PhD student

College of Science



William S. Baldwin, PhD

Professor

Biological Sciences and Environmental Toxicology Program

Over the past several years our laboratory has primarily been interested in the mechanisms by which individuals respond and acclimate to environmental toxicants, including reasons for sensitivity to toxicant exposure. During the development of a new knockout mouse model by Crispr/Cas9, we observed this model to be obese. Therefore, our current research is primarily focused on the interplay between toxicant exposure and obesity; primarily examining the inhibition of lipid metabolism by common environmental chemicals. We are also involved in projects that use transcriptomics to monitor pollution transport and mitigation. Baldwin currently teaches Mechanistic Toxicology (an advanced graduate course), Freshman Biology, and Human Biology online to South Carolina teachers working towards a M.S. in Biological Sciences. He currently has two graduate students and two undergraduate honor students in his laboratory.

Selected list of accomplishments:

- Published more than 50 peer reviewed manuscripts with a H-index of 29
- Received a \$362,000 research grant from NIH (PI)
- Received a \$600,000 research grant in collaboration with scientists at Clemson University and the Greenwood Genetics Center to study autism.
- Graduate students in Dr. Baldwin's laboratory have won presentation or research awards at the national Society of Toxicology meeting the past two year, 2017-2018
- Former graduate student won the best student manuscript in ETCJ, the flagship journal of the Society of Environmental Toxicology and Chemistry
- Two of his former student's received three year fully funded NIH or EPA-STAR fellowships for their research
- Graduate students have won best presentation at CBASS and 2nd place at GRADS, 1st place three minute thesis, and numerous presentation awards
- Nominated and Selected for the Clemson University College of Agriculture, Forestry, and Life Science (CAFLS) Graduate Teaching Award of Excellence
- Service Southern Research Station and Great Smoky Mountain National Park (PI)
- Received a \$97,000 research grant from the National Park Service (Co-PI)
- Has reviewer manuscripts for more than 20 journals and acted as editorial board member for ETCJ and NURR (special issue editor)
- Former Chair, Minority Affairs Program, Endocrine Society. Designed Endocrine Society's educational pamphlet targeted towards undergraduate education and used as a marketing tool for the Minority Access Program.
- Served as a NERC and OECD advisor
- Served on 22 grant panels, including 9 NIH grant panels
- Has served on numerous university committees including Faculty Senate and Athletic Council as Chair of the Academic Standards and Integrity Committee



Leo Rebholz, PhD
Professor
Mathematical Sciences

Leo Rebholz received his PhD from the University of Pittsburgh in 2006. He began his career at Clemson in 2008. Rebholz received tenure and associate professor in 2012 and was promoted to full professor in Fall 2015. Rebholz's research involves the modeling of complex fluid flows, including in particular turbulent flows. Rebholz is a leader in scholarship, teaching, and service. His teaching evaluations are uniformly exceptionally high. He co-authored a textbook on modeling for engineering students and stipulated to the publisher that it retail for only \$20. He is serving as the department coordinator of undergraduate studies

Selected List of Accomplishments:

- Published 74 papers, appeared or in press and 2 books, in 10 years. Examples: 7 papers currently "in press", including in SIAM Review, Numerische Mathematik, Journal of Scientific Computing, and Journal of Mathematical Fluid Mechanics, 8 papers published in 2016, including in Computer Methods in Applied Mechanics and Engineering, and Discrete and Continuous Dynamical Systems – Series B. and 9 papers in 2015, including 2 papers in Computer Methods in Applied Mechanics and Engineering, and 1 in ESAIM: Mathematical Modelling and Numerical Analysis.
- Completed as major advisor: 5 PhD, 12 Masters
- Advised 5 undergraduate research students, with 2 undergraduate students co-authoring refereed journal articles
- 5 current PhD advisees
- Current: PI on NSF grant (\$324,000) and ARO grant (\$160,000)
- PI on two previous grants from National Science Foundation totaling \$406,000.
- Co-PI on 2 NSF grants to fund graduate student mini-conferences involving 8 universities in SE US.



Lesly Temesvari, PhD
Alumni Distinguished Professor
Biological Sciences

The overall goal of the research in Lesly Temesvari's research program is to understand the pathogenesis of the human protozoan parasite, *Entamoeba histolytica*. This is the causative agent of amoebic dysentery and amoebic liver abscess; up to 50,000,000 people world-wide are infected annually. Currently there is no vaccine to protect those visiting or living in areas of endemicity. Current drugs cause significant liver toxicity during treatment. Temesvari is using state-of-art molecular, biochemical, genetic and cellular techniques, the Temesvari laboratory seeks to understand the virulence functions by studying (i) parasite-host interactions and (ii) the stress response in the parasite. Insight gained through these studies may lead to rational design of novel anti-*Entamoeba* agents. Lesly Temesvari has been a member of the Clemson faculty since 1999. She has held the title of Alumni Distinguished Professor since 2009 and served as Interim Associate Dean for Research (2016-2017) during the College of Science's building phase.

Selected list of Accomplishments:

- Awarded a 5-year, \$10.5 million NIH Center of Biomedical Research Excellence Grant. Her COBRE grant provides significant funds for young and mid-stage investigators working in the general area of eukaryotic pathogens, and builds campus-wide infrastructure through support of core research facilities.
- Principal Investigator on one other NIH grant
- Near-continuous funding from federal agencies (NIH, NSF, DARPA) since 1999
- In the last 5 years she published 9 papers in high impact journals (Eukaryotic Cell, Infection and Immunity, Experimental Parasitology, International Journal of Parasitology, PLoS ONE, Trends in Parasitology, PLoS Pathogens).
- Three of her papers were featured as covers, and two of her publications were featured as an Editors' Choice Articles of Significance
- Awarded the Fulbright Chair in Research Methodology at the University of Siena (Siena, Italy) (2010)
- Awarded two Fulbright Intercountry Lecturing Awards, which allowed her to lecture at the Pasteur Institute in Paris, France and the Bernhard Nocht Center for Tropical Medicine and Hygiene in Hamburg, Germany.
- Served on >12 different grants review panels for the NIH, NSF, National Science Foundation of Israel and National Science Foundation of Germany
- Faculty leader to the group of students writing the science column in The Tiger for 13 semesters. The column name is Tigra scientifica and is used to report on the latest findings in academic research

Focus on Young Faculty

College by College - Notable Young Faculty Achievements - Clemson has hired several new promising faculty with great potential. Each college was requested to send a brief write-up of three top young faculty with high research and scholarly productivity. This section includes the write-ups received.

College of Agriculture, Forestry and Life Sciences



Catherine DiBenedetto, PhD
Assistant Professor
Agricultural Sciences

Catherine DiBenedetto's teaching in the Agricultural Education Program is focused in the areas of instructional methods, curriculum design, and teaching in agriscience laboratories. She is passionate about advising, mentoring, and working with pre-service teachers to prepare them to be effective instructors in successful school-based agricultural education programs.

Her research agenda focuses on the study of student readiness in the 21st century to provide teacher professional development and effectively prepare students with the 21st century employability skills needed to become career ready. Her research interests also include inquiry-based instructional methods, teacher self-efficacy/effectiveness, and interdisciplinary education. Her goal is to work collaboratively with the South Carolina Association of Agricultural Educators to provide instructional materials and disseminate research findings to better prepare pre-service and in-service agriscience teachers with opportunities to increase instructional self-efficacy and highlight inquiry-based instruction and STEM education in their classrooms and laboratories.

Selected List of Accomplishments:

- First Female Faculty member in 100 years of Agricultural Education at Clemson University.
- Published research on abstraction and reflection in Agriscience Laboratory settings in the Journal of Agricultural Education.
- Published a Conceptual Model for the Study of Student Readiness in the 21st Century. North American Colleges and Teachers of Agriculture (NACTA) Journal.
- Published research on examining undergraduate student attitude towards interdisciplinary education in the Journal of Agricultural Education.
- Published research about how scientific reasoning scores predict the students' intent to pursue a STEM career or a career in agriculture in the Journal of Agricultural Education
- Develops Agricultural Education Instructional Methods and Curriculum to align with National Agriculture, Food, and Natural Resources Standards that is utilized at state and national levels.
- Has become an integral member of the College of Education and helps assure agricultural education curriculum alignment to state and national teacher certification requirements.
- Developed Proposal to National Association of Agricultural Educators (NAAE) to become a STAR State. Led statewide efforts to establish strategies for retention and recruitment of agricultural educators in South Carolina.
- Led 2016 National Association of Agricultural Educators (NAAE) Teach Ag Day Satellite Location. Over 150 state-wide high school students, teachers, Clemson undergraduate, graduate students, staff and faculty participated in a full day of professional development with a 10-minute national broadcast that highlighted Clemson University and the Agricultural Education program.
- Organized 2016 CAFLS Teaching Symposium- Consisted of over 15 participants that were nominated by CAFLS department chairs to attend three, four hour professional development sessions that focused on improving teaching effectiveness.



Cathy Bodinof Jachowski, PhD
Assistant Professor
Forestry and Environmental Conservation

Cathy Jachowski has been an Assistant Professor in the Department of Forestry and Environmental Conservation at Clemson University since August 2016. She holds a PhD in Fish and Wildlife Conservation from Virginia Tech, a MS in Wildlife and Fisheries Science from the University of Missouri and a BS in Environmental Science from Georgetown College.

Her research interests include stream ecology, amphibian and reptile ecology, population ecology, and animal physiology and movement. Her work involves the use of freshwater species as indicators of stream health or monitoring behavior to understand how wildlife respond to environmental change. She has been involved in research related to hellbender ecology and conservation for over a decade, but I am fascinated by all things aquatic. Prior to a career in academia, she was employed as a resource staff scientist for the Missouri Department of Conservation and spent several years in the field of experiential science education.

Selected List of Accomplishments:

- Awarded Best Oral Presentation at the 2017 Biennial Hellbender Symposium
- Developed new course in Methods for Monitoring Stream Amphibians
- Developed new graduate course in Wildlife Resource Selection
- Became an invited fellow of the Clemson Institute for Parks
- Published research about spatial differences in trace element bioaccumulation in turtles exposed to a partially remediated coal fly-ash spill in the journal *Environmental Toxicology and Chemistry*
- Published research on how current land use is a poor predictor of hellbender occurrence in the journal *Diversity and Distributions*.
- Published research on haematological and immunological characteristics of eastern hellbenders infected with parasites in the journal *Conservation Physiology*
- Serves a reviewer for peer-reviewed publications *Freshwater Science* and *Journal of Herpetology*



Vidya Appukuttan Suseela, PhD
Assistant Professor
Plant and Environmental Sciences

Vidya Suseela is a soil ecologist who joined Clemson University as an Assistant Professor in 2017. She received her Ph.D. from Purdue University in the field of global change biology. She was the recipient of the prestigious NSF Postdoctoral Research Fellowship in Biology that enabled her to develop spectroscopic techniques to elucidate the biological processes that are of relevance in ecology. Suseela's research

strives to unravel the chemical underpinnings of soil carbon cycling and root-rhizosphere interactions in terrestrial ecosystems. Her research has been published in high impact journals including *Global Change Biology*, *New Phytologist*, & *PNAS*, and is ranked among the most widely cited in the field. At Clemson, Suseela is teaching one undergraduate course (Environment and Agriculture; PES 3150; average enrollment-25-30 students from 10 different majors) and one upper level undergraduate/graduate course (Beneficial Soil Organisms for Plant Growth; PES 4900/6900; average enrolment-15-20). Her research lab includes one graduate student, three undergraduates including two honor's students and two postdoctoral fellows joining in April 2018. She has also been involved extensively in mentoring undergraduate and high school students through the UPIC and SPRI programs at Clemson.

Selected List of Accomplishments:

- Research proposal submitted to USDA-NIFA as PI was funded with an award of \$450,000 (2017-2021; award rate <10%).
- Collaborative research proposal submitted to NSF-Ecosystems as Co-PI is currently recommended for funding (total funding to Clemson \$557,984; percent contribution of Dr. Suseela is 45%; funding rate <5%).
- Suseela submitted one research proposal to USDA-NIFA (\$499,000; classified as medium priority; to be resubmitted in 2018) and one to DOE-TES program as PI (\$906,016; under review).
- Suseela is recently invited (competitively selected) to submit a research proposal for the New Innovator Award of the Foundation for Food and Agriculture Research (FFAR).
- Published three first author peer-reviewed journal articles; two of them related to plant litter decomposition and soil organic matter sequestration was published in a high impact journal- 'Global Change Biology'. Impact Factor 8.50, ISI Journal Citation Reports © Ranking: 2016: 1/53 (Biodiversity Conservation); 5/229 (Environmental Sciences); 6/153 (Ecology).
- Another research work focusing on the effect of environmental stress on the suberin chemistry of grass roots published in *AoB plants* was selected as editors' choice.
- Suseela was invited to present her research at three land-grant universities- Pennsylvania State University, North Carolina State University at Raleigh and the University of Georgia in 2017.
- Suseela was invited to present her research at the trisociety -ASA, CSSA and SSSA International Annual Meeting, Tampa, FL in 2017.
- One of Dr. Suseela's undergraduate mentees (Georgianna Scott) received the prestigious Killam Fulbright Fellowship in 2017.

College of Architecture, Arts and Humanities



Elora Raymond, PhD
Assistant Professor
City Planning & Real Estate Development

Elora Lee Raymond is an Assistant Professor in City Planning and Real Estate Development in the School of Architecture at Clemson University. She holds a PhD in Urban Planning from the School of City and Regional Planning at Georgia Institute of Technology and an A.B. in History from Brown University. Her research is at the intersection of real estate finance and socio-spatial inequality. She has explored the uneven housing market recovery following the real estate and financial crises of the 2000s, persistent and concentrated negative equity in the Southeast, the rise of single family rental securitizations, and eviction rates in single family rentals. Raymond has published articles in Urban

Geography, Housing Studies, and the Federal Reserve Bank of Atlanta's Community and Economic Development Discussion Paper Series. Her research has been featured in the Washington Post, Bloomberg's Businessweek, NPR's Morning Edition, the Atlanta Journal Constitution, Univision, and Radio New Zealand, among other news outlets. Prior to her career as an academic she worked in health care finance as a planner and as a survey researcher.

Selected List of Accomplishments:

- As a doctoral candidate in City & Regional Planning at Georgia Tech in the months before coming to Clemson, Raymond was awarded the Best Conference Paper Award at the national Urban Affairs Association conference for her paper titled: "Race, Uneven Recovery and Persistent Negative Equity in the Southeastern United States." According to the committee, the paper is timely in that it helps planners, policy makers and researchers understand the uneven distribution of the housing recovery across the United States following the housing bubble and its crash approximately 9 years ago. The paper establishes that race remains a driving force in housing markets, reducing the wealth of black homeowners even after controlling for home conditions, the incidence of sub-prime lending and household income levels. The paper makes interesting use of the Zillow database which is relatively new to the literature, and joins it with data from the Federal Reserve Bank to help us understand the geography of the housing market recovery. For this work, she has recently been interviewed and cited in the Washington Post, on National Public Radio, and Bloomberg Business Week.



Eric J. Lapin, PhD
Lecturer
Performing Arts

Eric J. Lapin is Director of Artistic Initiatives for the Brooks Center for the Performing Arts and a Lecturer of Music in the Department of Performing Arts. He teaches courses in applied clarinet, arts administration, and jazz history. Lapin holds Bachelors and Masters degrees in Clarinet Performance from the University of South Carolina and a PhD in Higher Education Leadership from Clemson University. He is a member of Pi Kappa Lambda, the College Music Society, the National Association for Music Education, the Humanities Education and Research Association, the Jazz Educators Network, and is an honorary brother of Kappa Kappa Psi. As a clarinetist, Lapin has performed with the Piccolo Spoleto Festival Orchestra, the Spartanburg Philharmonic, the Limestone College Wind Ensemble, and has given solo performances for the Greenville Music Teachers Association and the 2012 Clemson University Victor Hurst Academic Convocation. Lapin has also been a featured soloist with all Clemson University student ensembles. As a clinician and private instructor, Lapin's students have received numerous accolades, including first chair clarinet in SC All-County, All-Region, and All-State ensembles and acceptance into the South Carolina Governor's School for the Arts and Humanities. Lapin has presented papers at numerous conferences, hosted research exhibits, published scholarly essays, and was recently named February 2017 Researcher of the Month by the Clemson University Library. In addition, Lapin also serves as a delegate to the Faculty Senate and is on the University STEAM committee.

Selected List of Accomplishments:

- Published The Future of Arts Performance in Higher Education, College Music Symposium
- Published The New Performing Arts Curriculum, The Chronicle of Higher Education
- Received the Brooks Center Courtyard Session Concert Series grant
- Received The South Carolina Arts Commission grant

College of Behavioral, Social and Health Sciences



Lauren Duff, PhD
Assistant Professor
Parks, Recreation, and Tourism Management

Lauren Duffy has two major research areas that intersect under the umbrella of critical sustainable tourism: 1) tourism planning and development with a particular focus on how power dynamics influence stakeholder participation throughout a planning process, and how power influences the distribution of tourism impacts (i.e., better understanding who benefits from tourism development projects), and 2) critical pedagogy and global learning. Her interest in tourism planning emerged out of her time spent working in rural communities in South and North Carolina where she has assisted with master tourism plans, resident and visitor survey data, community mapping, GIS asset mapping, town hall focus groups, and community visioning exercises, feasibility assessments for small businesses, product development, marketing plans, and linkage development. In the international context, her past and current research program includes working with communities in Chile, Cuba, Dominican Republic, Ecuador, El Salvador, South Africa, and Zambia. Her research also explores the impact of cross-cultural exchanges, highlighting the importance of learning from, and with, people across the world. These exchanges, which can be intentionally designed into the classroom, are fundamental in preparing students to collaborate across borders. Duffy's work has also focused on how to help students to think both critically, and ethically, so that they can engage in the responsibility of addressing the grand social and environmental challenges of our time. Other pedagogical research has related to teaching diversity and social justice, international education, service-learning, collaboration, and transformative learning.

Selected List of Accomplishments:

- Clemson University Critical Thinking Fellow (2015 – present), Clemson Institute for Parks Fellow (2014 – present); Award for Excellence in Innovation, College of Behavioral, Social, and Health Sciences, Clemson University (for development of a writing mentorship program, with Dr. Gwynn Powell)
- PI on a project in Great Falls, SC that is focused on helping the community prepare to leverage future investment in recreational infrastructures on the Catawba River as a result of a FERC relicensing agreement with Duke Energy (SC DNR)
- Co-PI on a project evaluating the effectiveness for USC Beaufort's Center for Event Management and Hospitality Training (Town of Beaufort, SC)
- Co-Investigator on a project examining the social carrying capacity for mariculture development on the SC coast as it intersects with the tourism industry (SC Sea Grant)
- Co-Investigator on a program grant providing two camps per year for 7-a-side and 5-a-side soccer to further the development and capacity of the U.S. adaptive soccer program (U.S. Veterans Affairs)



Stephanie M. Pangborn, PhD
Assistant Professor
Communication

Stephanie Pangborn is a qualitative health, organizational, and interpersonal communication scholar in the Department of Communication. Her research agenda focuses on humanizing responses to social markers of difference. She is inspired by organizing practices in health care and higher education contexts that challenge deficit perspectives of difference/illness and cultivate inclusive communities that invite individual growth and edifying connection. Her work to date spans a range of topics including hospice care, Alzheimer's disease and related dementias, socially-silenced health experiences,

advocacy and activism, creative arts in health contexts, intergenerational relationships, aging, barriers to biopsychosocial health and well-being embedded in the college experience, and service learning.

Selected List of Accomplishments:

- National Communication Association Best Aural/Visual Project Award (2017); Clemson University School of Health Research Faculty Scholar (2016-present); Institute of Engaged Aging Faculty Associate (2015-present); Faculty-in-Residence (2015-present); Clemson University Service Alliance Faculty Fellow (2015-16); Outstanding Professor of the Year (2015)
- Communication and Health, Health Communication in Communities, Communication and Organizing, Interpersonal Communication, Qualitative Communication Research Methods, Communication Theory
- (2017) Co-Producer of a feature-length documentary, *Realistically Ever After*, which profiles the Dina family's efforts to elevate the cause of childhood cancer and survivorship by founding Turn it Gold. The film depicts their pursuit in partnering with schools, athletic teams, and community members to communicate the hard facts of childhood cancer and increase funding for research. Stephanie organized Clemson's Turn it Gold initiatives in the fall of 2016, which are highlighted in the documentary, involving Department of Communication students, the women's basketball team, and members of the football, men's basketball, and track teams.
- (2017) Sole-authored manuscript about narrative theory inspiring life-affirming shifts in hospice organizing was published in *The Journal of Applied Communication Research*
- PI for an engaged research project at Clemson Downs' memory care facility (funded by a research development grant awarded by the College of Architecture, Arts, and Humanities) exploring the capacities of creative arts in pursuit of holistic care for individuals living with dementia; in November 2016, Stephanie shared this project and the artwork created by residents of Clemson Downs in a public art show to create space for students, family members and friends of residents, professional care providers, and the Clemson community to interact with individuals diagnosed with Alzheimer's and related dementias in an environment that celebrated their artistic and relational capacities
- PI for research project investigating the mutual benefits of community engagement opportunities for university students and Clemson Downs residents in the Intergenerational Friendship program that Stephanie started during her second year at Clemson



Shirley M. Timmons, PhD, MN, BSN, RN-BC, CNE
Associate Professor
School of Nursing

Shirley Timmons focuses on applied research and translation of evidence-base knowledge toward population health. Her academic training is in nursing education, community/population health, and vulnerable populations—especially, underserved groups. Shirley’s area of expertise is racial/ethnic based health disparities addressed through evidence-based health promotion interventions. She has provided technical support to local and national audiences focused on health program evaluation and her faith-based health program evaluation framework continues to be published in the widely used graduate level

textbook by Stanhope and Lancaster: Public health nursing: Population-centered health care in the community. Her research and related publications range from faith-based substance abuse recovery and research-based health programs to hypertension management, HIV infection prevention, and implications of rest to weight control.

Selected List of Accomplishments:

- International Institute for Qualitative Methodology Member Scholar, Clemson University School of Health Research Scholar, National League for Nursing Board Certified Nurse Educator, American Nurses Credentialing Center Board Certified Faith Community Nurse
- Research in Nursing, Advanced Family and Community Health, Community Health Nursing and Health Promotion, Professional Transitions for Nurses
- Co-investigator on a project using cross-cultural cognitive interviewing to develop an instrument to assess partnership trust in community based participatory research among Hispanic and mainstream stakeholders (CBSHS IMPACT).
- Principal Investigator of a study to better understand the experience of underrepresented racial/ethnic minority nurses who have earned a BSN degree at a majority Caucasian institution (Mary Lohr).
- Consultant on a research study to improve cardio metabolic (CM) health in discrete geographic areas with disparities, through collaboration with patients and key stakeholders living in these communities, to impact modifiable medical and social determinants underlying the CM disparities (PCORI)
- Chair of the Clemson University College of Behavioral, Social, and Health Sciences Community and Inclusion Committee and Anderson Nurse Family Partnership Board of Directors; Vice President of the Westside Community Center Board of Directors; Early Career Reviewer program--Center for Scientific Review; Reviewer for Patient Centered Outcomes Research Institute; and Reviewer for Journals: Health Education Research; Behavioral Health Services and Research; Christian Nursing; Health Care for the Poor and Underserved; Health Disparities, Research, and Practice; Nurse Practitioners; Religion and Health; Family and Community Health; and Women’s Health Issues; Founding member of the Upstate Black Nurses Association.

College of Business



Brandon Lockhart, PhD
Assistant Professor
Finance

Brandon Lockhart joined the Clemson faculty in 2013 as an assistant professor of finance. He received a B.S. in management with certificates in economics and finance from Georgia Tech and a PhD in finance from the University of Florida. Lockhart was previously on the faculty at the University of Nebraska-Lincoln, and prior to academia he worked in Georgia as a relationship manager and analyst in commercial banking. Lockhart's research focuses on corporate finance topics such as the impact of executive compensation incentives on debt contracting, and the impact on shareholder value of various corporate strategies and behaviors including tax avoidance, corporate lobbying, and specific disclosure practices.

Selected List of Accomplishments:

- Wells Fargo Faculty Scholar
- He has published in nine refereed journals
- His top paper is "IRS and corporate taxpayer effects of geographic proximity" in the Journal of Accounting and Economics which documents the surprising finding that corporations, on average, are more aggressive with their tax strategies the closer their headquarters are located to the IRS agents likely to conduct their tax audit. This result is consistent with the view that executives consider themselves to enjoy an information advantage relative to IRS agents gained via proximity, for example, through peer firm networks
- Lockhart is analyzing executive language used during quarterly conference calls with analysts to increase our understanding of the impact of this disclosure method on the firm's cost of external capital.
- Lockhart teaches our introductory finance course and a senior-level financial statement analysis course to our undergraduates, as well as our financial management course offered to MBA students at Greenville One.
- Lockhart is the current chair of our departmental Strategy Committee



Michael Makowsky, PhD
Assistant Professor
Economics

Michael Makowsky is an Assistant Professor in the John E Walker Department of Economics. He earned a PhD in Economics from George Mason University in 2008. Before coming to Clemson University, Michael was an Assistant Professor at Towson and Johns Hopkins.

Makowsky is a bright upcoming scholar whose classes are well received by our students. Makowsky typically teaches Public Choice -- one of the most popular classes offered by the Department of Economics. In these courses, he not only teaches the basics of Public Choice he also engages the students in his own research interests in the field. His explanations of the determinants of speeding tickets is intuitive and easy to understand and provides a nice introduction into Public Choice. In this lecture, Michael shows that speeding tickets are not always about safety. He shows that some areas are more likely to give more speeding tickets if the city is more fiscally constrained, he finds that tickets and fines are higher for those individuals who are out of town and the size of the fine increases the farther they individual has to drive to go the court appearance. While this is only Michael's third year, he appears ready to carry on the long tradition of excellence in teaching and research in Public Choice economics. Michael has 22 publications. Michael's research agenda can be summarized as qualitative and quantitative investigation of social, legal, and political institution using the tools economic analysis. Michael considers himself a "methodologically promiscuous applied microeconomist who plays with data, laboratory experiments, and agent-based computational models to pursue interests in law enforcement, crime, and political economy." In addition, Michael's work has a broad appeal within and outside of academia.

Selected List of Accomplishments:

- Michael research is well cited for someone who has received his degree in 2008. His research has cited in nearly 400 other research papers according to Google Scholar.
- His research has also received attention outside of academics. His research on traffic enforcement and revenues has been featured in the New York Times, the Boston Globe, the Chicago Tribune the new Republic, and Slate.
- His most recent research paper on minimum wage and recidivism rates has been picked up by several news services including Bloomberg, National Affairs, Fast Company, the Greenville News, and Naked Capitalism.
- His research has also been picked and featured by many highly regarded blogs including the Oxford Press Blog, National Affairs, Business Week, Economist's Views, and Marginal Revolution.
- Michael has also been interviewed by the National Tax Foundation.
- Methodologically promiscuous applied microeconomist who plays with data, laboratory experiments, and agent-based computational models to pursue interests in law enforcement, crime, and political economy.



E. Erin Powell, PhD
Assistant Professor
Management

Following more than a decade of experience in the textile industry through roles in school, university spin-offs, corporate manufacturing and research labs, Erin Powell now studies entrepreneurship with a focus on the textile industry. In her dissertation, completed at North Carolina State University in 2011, she explored how and why some textile entrepreneurs continued to pursue local manufacturing despite extreme adversity from the industry dynamics and economic recession. Two topics emerged to form the foundation of her primary research interests: founder identity – an entrepreneur’s sense of “who I am” and “who I want to be” – and the behaviors of resourcefulness – how some entrepreneurs make do with seemingly inadequate resources. She has expanded her research to questions of entrepreneurship and inequality in the rural southeastern U.S. and around Cape Town, South Africa. Her work is gaining international recognition as evidenced by an increasing rate of citations and a robust pipeline of related projects with colleagues on four continents. Professor Powell’s research is published in premier management and entrepreneurship journals: *Academy of Management Journal*, *Academy of Management Perspectives*, and *Journal of Business Venturing*. She has also published book chapters in the prestigious *Routledge Companion to Qualitative Research in Organization Studies* and *A Research Agenda for Entrepreneurship and Context*. Professor Powell taught at N.C. State University and Brown University before joining Clemson in 2014. She currently teaches *New Venture Creation* to approximately 80 undergraduate students per year, *New Venture Creation* to the MBAe cohorts (part time and full time students), and *Entrepreneurship and Venture Management* (a growth ventures course) in the MBAC program. She is currently serving as a committee member for a PhD student in Operations and Supply Chain in the Department of Management and co-supervising two PhD students at the University of Cape Town. Professor Powell serves on the committee for Global Engagement for the College of Business and the Department of Management’s committee for the Distinguished Scholar Series for Entrepreneurship, Strategy and Organizational Behavior. She was recently invited to join the editorial review board of the premier journal for her field, *Journal of Business Venturing*.

Selected List of Accomplishments:

- Southern Management Association, Best Paper Award, Organizational Behavior Track (2017)
- Babson College Entrepreneurship Research Conference, Best Paper Proceedings, *Frontiers of Entrepreneurship* (2014, 2015)
- Invited Research Presentations: North Carolina State University (2014), Western Ontario Ivey Business School (2015), ESADE Business School (2016), University of Granada (2016), University of Cape Town (2017)
- Uhlmann, Rick. (2016, March 22). Textile Entrepreneurs Cut from Different Cloth, Clemson Research Shows. [Press release]. Clemson University College of Business and Behavioral Science Retrieved from <http://newsstand.clemson.edu/textile-entrepreneurs-cut-from-different-cloth-clemson-research-shows/>

College of Education



Kristin K. Frady, EdD

Assistant Professor

Educational and Organizational Leadership

Development & Engineering and Science Education

Kristin Frady's research focuses on how workforce education and development influence innovative and technology infused education initiatives, organizational learning, and career pathways as they relate to human resource development. The context of this research emphasis is in three primary areas: (1) secondary career and technical education and two-year college institutions, specifically focusing on STEM education; (2) workforce education and development; and (3) career development. The outcome of this research emphasizes linking education, training, work, and communities to improve competitiveness within the workforce and promote regional educational and economic improvement. Additionally, this research aims to promote improved understanding and effectiveness of initiatives to increase the diversity and quality of the workforce pipeline while gaining greater understanding of foundational factors impacting education, the workforce, and human resource development.

Selected List of Accomplishments:

- Co-PI, National Science Foundation Advanced Technological Education (ATE). A Sustainable ATE Coordination Network for Enhancing Personalized Learning Using Virtual and Augmented Reality-based Technology Innovations in Technician Education. August 2017 – August 2020. \$792,820.
- Co-PI, National Science Foundation INCLUDES. NSF INCLUDES Statewide Consortium Supporting Underrepresented Populations in Precalculus by Organizational Redesign toward Engineering. December 2017-November 2019. \$297,192.
- Co-PI, National Science Foundation. Workshop: Reducing Attrition in Precalculus Pathways to Engineering Degrees (WRAPPED). August 2017-July 2018. \$49,711.
- Senior Personnel, National Science Foundation Advanced Technological Education. Center for Aviation and Automotive Technological Education Using Virtual E-Schools (CA2VES): A Resources to Meet Technological Workforce Needs. July 2015 – June 2018. \$2,991,820.
- Co-PI, Department of Commerce-Economic Development Administration. Make it in America Challenge Grant Program. Select SC: Accelerating SC Economic Development and Job Creation. January 2014 – December 2018, \$2,500,000 to Clemson University.
- PI, SAE International. AWIM Evaluation Plan: Project Continuum. May 2016-August 2018. \$80,350.
- PI, North Carolina Department of Public Instruction Career and Technical Education. Manufacturing and Technical Digital Curriculum Partnership with EducateWorkforce. August 2015-August 2017. \$47,405.
- PI, South Carolina Department of Employment and Workforce. SC Job Ready U: Workforce Fundamentals Digital Curriculum Partnership with EducateWorkforce. August 2016-August 2017. \$100,680.



Carlos Nicolas Gomez, PhD
Assistant Professor of Secondary Mathematics Education
Education
Teaching and Learning
Mathematical Sciences

Carlos Gomez's research centers on issues of mathematics teacher development. Specifically, he focuses on the emotional experiences of teachers as they form their identities as teachers-of-mathematics. For those learning to teach, emotional experiences during their field placements can influence the value and trust they put on their teacher education program. Gomez is also interested in teachers learning to conduct argumentation and developing professional learning communities. Teacher's support of collective argumentation is one way to promote participation of students in the construction of new mathematical ideas. He has published several articles in top tier journals including *Mathematics Teacher Education and Development* and *Mathematics Teaching in the Middle School*.

Selected List of Accomplishments:

- PI (\$6000 in 2016-2017), Supporting Mathematics Teacher Argumentation, ADR Research Reward, Clemson University
- Designed professional development on discourse in the mathematics classroom for mathematics teachers at McCants Middle school.
- Selected for the 2017 cohort of the Service, Teaching, and Research in Mathematics Education Program



Luke J. Rapa, PhD
Assistant Professor of Adolescent Development
Education and Human Development
College of Education

Luke Rapa joined Clemson University in August 2018. Rapa, a developmental-educational psychologist, studies how contextual, sociocultural, and sociopolitical factors—including socioeconomic disadvantage, structural constraints, and societal inequality—shape key developmental and psychological processes to promote or constrain adolescents’ development and academic success. Rapa’s program of research examines (1) how adolescents critically analyze societal inequities and develop the motivation and agency to promote social change; (2) how youth navigate structural constraints or marginalizing factors (e.g., institutional racism, discrimination, stereotypes in school) to achieve academic success and well-being; (3) how social identity threats shape development and how and social-psychological interventions can bolster academic performance and promote well-being; and (4) how teacher practices and classroom environments foster equitable learning outcomes for all students.

Selected List of Accomplishments:

- Co-director of the Child Learning and Development Lab, housed by the College of Education, which brings together faculty and students to study and address issues related to the healthy development and learning of children of all ages.
- Co-PI (\$9,615 in 2017-2018), Inspecting What’s Expected: Exploring Relations between Classroom Expectations and Pre-Adolescents’ Critical Consciousness. ADR Research Award, Clemson University College of Education.
- PI (\$17,372 in 2018-2019, proposal under review), Exploring the Effects of Income Inequality, Poverty, Teacher Turnover, and Teacher Match on Student Achievement: South Carolina and Beyond. Russell Sage Foundation.
- Co-PI (\$622,500 from 2018-2019 to 2022-2023, proposal under review), South Carolina Center for Excellence for the Recruitment and Retention of Minority Teachers. South Carolina Commission on Higher Education, Centers of Excellence Program.
- First authored publication in the high-impact, top-tier journal *Developmental Psychology*.
- Co-first authored publication in the high-impact, top-tier journal *Child Development Perspectives*.

College of Engineering, Computing and Applied Sciences



Ying Mei, PhD
Assistant Professor
Bioengineering

Ying Mei, Assistant Professor of Bioengineering, is a faculty member in the Clemson-MUSC Bioengineering program, which is part of the Clemson Bioengineering department physically located at the MUSC. The program aims to synergize the engineering expertise at the Clemson University and clinical resource at the MUSC to address the unmet medical challenges. During the past 5 years, Mei has leveraged this unique environment and established a productive research program focused on the development of regenerative therapy to treat cardiovascular diseases. This has led to 13 peer-reviewed publications including 2 corresponding-authored papers in *Nano Letters* (IF = 12.7)*. His lab currently consists of 5 PhD students, and his research is supported by NIH, NSF and SCRA (South Carolina Research Authority). In addition, he has established a productive outreach program to provide research opportunities to the local high school students for their senior theses.

Selected List of Accomplishments:

- Awarded with the Dean's Faculty Fellow Award from the College of Engineering, Computing and Applied Sciences at Clemson University
- Awarded with a NIH R01 award (\$1,490,539)
- Co-Investigator of the newly funded NSF Track I grant SCMADE (\$580,000)
- Awarded a grant from SCRA (South Carolina Research Authority) (\$61,888)
- One of his PhD students was awarded the Page Morton Hunter Bioengineering Graduate Researcher Award from the Bioengineering Department at the Clemson University
- Two of his PhD students received a NIH T32 fellowship (\$120,000) based on their Clemson PhD research
- Session co-chair in the 2017 Institute of Biological Engineering Annual Meeting
- Organized the Hansjörg Wyss Endowed Chair Distinguished Seminar Series and improved visibility of Clemson-MUSC Bioengineering program in the field.

*IF: The impact factor (IF) or journal impact factor (JIF) of an academic journal is a measure reflecting the yearly average number of citations to recent articles published in that journal. It is frequently used as a proxy for the relative importance of a journal within its field; journals with higher impact factors are often deemed to be more important than those with lower ones



David M. Neyens, PhD
PhD Assistant
Professor Department of Industrial Engineering

David Neyens is a human factors engineer in the Department of Industrial Engineering who studies the how humans and technology interact in complex systems primarily in transportation and healthcare systems. He works extensively with researchers and clinicians at Greenville Health System and the Medical University of South Carolina.

Selected List of Accomplishments:

- A co-PI on the \$4M AHRQ P-30 grant with Dr. Anjali Joseph
- Associate Director of the Human Factors Institute at Clemson University
- Serves on the President's LGBTQ Commission, Clemson University
- Serves on the Master in Transportation Safety Administration, Curriculum Committee
- Published several papers this year including papers in the British Medical Journal Quality and Safety, Journal of Safety Research, and Health Systems.



Sapna Sarupria, PhD
Assistant Professor
Chemical and Biomolecular Engineering

Sapna Sarupria seeks to use computational methods to develop an understanding of the molecular behavior of materials so that they can be engineered to have specific properties. Her research group uses molecular modeling, statistical mechanics and computer simulations to study aqueous, polymeric and biological systems that are important for energy, environmental and bioengineering applications. For example, her group is developing models capable of predicting heterogeneous ice nucleation, which is important for applications ranging from weather forecasting to the design of material surfaces for airplanes and power lines, where inhibition of surface bound ice particles is vital. Her research group is also interested in understanding the assembly of virus particles and exploring scenarios that either promote or inhibit their assembly. Finally, Sarupria's research team seeks to use molecular simulations to obtain a detailed molecular-level picture of the phenomena that impact the formation of gas hydrates, which are key to fossil fuel energy recovery, water desalination, natural gas storage and transportation, and carbon dioxide sequestration technologies. Sarupria currently teaches undergraduate courses in *Thermodynamics*, *Fluid Flow* and *Heat Transfer* as well as graduate courses in *Advanced Thermodynamics* and *Molecular Modeling*. She has also been heavily involved with the Creative Inquiry (CI) program, leading 7 CI classes in the past 3 years. Her research group currently includes 8 doctoral students and 4 undergraduate researchers.

Selected List of Accomplishments:

- Board of Trustees Award for Faculty Excellence (2018)
- Awarded an NSF CAREER grant to study ice nucleation on organic surfaces (\$503k).
- Co-awardee of a Defense Threat Reduction Agency (DTRA) grant in collaboration with Dr. Mark Blenner to study immobilization of enzymes on membrane surfaces (\$824k).
- Awarded an NSF grant to study ice nucleation on mica surfaces (\$288k).
- Awarded an NSF-DMREF grant to develop a multiscale modeling framework to study membrane fouling (\$969k).
- Awarded an ACS PRF Doctoral New Investigator Award to study gas hydrate nucleation near surfaces (\$110k).

College of Science



David Feliciano, PhD
Assistant Professor
Biological Sciences

David Feliciano joined the faculty in the Dept. of Biological Sciences in 2013. The goal of the Feliciano laboratory is to determine the etiology of childhood neurological diseases, namely epilepsy, autism spectrum disorders, and intellectual delay. Feliciano has had incredible success in his career. Since joining Clemson, Feliciano has secured approximately \$650,000 in funding from the NIH and the Whitehall Foundation. He has published 4 papers in the last 12 months. Overall, since 2008, his papers have been cited 318 times. Specifically, Feliciano pioneered novel approaches that led to the only mouse model to date that mimics the disease Tuberous Sclerosis Complex (TSC) and his work is cited in a wide range of journals including Nature Medicine. TSC is a genetic disorder that causes tumors to develop in many different organs, primarily in the brain, eyes, heart, kidney, skin and lungs. It is estimated that 1 in 6000 births will be TSC-affected. To put that in perspective, at least 2 children born each day will have TSC. Thus, these mouse models will provide significant insight into the etiology of the disease and will serve to test potential treatments. To that end, a manuscript by Feliciano, currently under revision at Scientific Reports, details a novel approach for therapeutic intervention in a subset of such patients. Feliciano's seminal studies on secreted factors, called exosomes, has generated tremendous interest from academics, the pharmaceutical, and biotechnology industries. His Clemson student team recently published a manuscript demonstrating age dependent changes in patient cerebrospinal fluid exosomes, which will facilitate diagnostic testing for a range of neurological disorders. Feliciano recently generated a "first of its kind" transgenic mouse model to understand the role of exosomes in the brain. Finally, it must be mentioned that the process of scientific discovery is brought into the Clemson University classroom where Feliciano takes pride in sharing the successes and failures of science to prepare the next generation of scientific and medical leaders.

Selected List of Accomplishments:

- \$650,000 in funding from the NIH and the Whitehall Foundation
- Published 4 papers in the last 12 months. Overall, since 2008, his papers have been cited 318 times



Ramakrishna Podila, PhD
Assistant Professor
Physics and Astronomy

Ramakrishna Podila's research is focused on elucidating fundamental properties of materials at the nanoscale and using them for energy and biomedical applications. His group at the Clemson Nanomaterials Institute synergistically integrates the principles of condensed matter physics, materials science, physiological chemistry, and toxicology to develop efficient batteries, supercapacitors, triboelectric generators, biosensors, imaging probes, unique photonic devices, and drug delivery vehicles. His work thus far has led to >70 peer-reviewed articles (Citations: 2700; H-index: 30*) in high-impact peer-reviewed journals including Nature, Advanced Materials, Advanced Energy Materials, ACS Nano, Nano Letters, 2 patents, and several invited talks at internationally reputed conferences such as MRS Fall meeting, ACS Spring meeting. Podila was also appointed as a faculty scholar with the Clemson University School of Health Research. His research lab presently consists of four graduate students and is supported by funding from NASA, NIH, and SC EPSCoR/Idea in addition to an industrial sub-contract through Haworth, Inc. He also organized many outreach programs such as the annual "Nano day" at the Roper Mountain Science Center (Greenville, SC) and other K-12 STEM education through Clemson EMAGINE program. Podila presently teaches "Introduction to Quantum Mechanics" at the senior level. He also serves as the departmental advisor for freshmen.

Selected List of Accomplishments:

- Published ~10 peer-reviewed journal articles in high-impact journals such as Advanced Materials in 2017.
- Invited to present our work on "defect-engineering in nanomaterials" at the reputed Materials Research Society 2017 Fall Meeting attended by ~10k scientist from 55 countries.
- Received a US patent for large scale manufacturing of nanomaterials-based energy storage devices in Fall 17.
- Filed a new provisional patent on "wireless triboelectric nanogenerators" in November 2017, based on a breakthrough published in Advanced Energy Materials, which attracted media attention from national and international news outlets (e.g., Fox Carolina news, The Hindu daily newspaper with 12 million readership).
- Awarded NASA grant (\$750k, ~35% effort) for developing next-generation energy storage and thermal materials for Mars rovers and extra-vehicular activity suits in Spring 2018.
- Awarded SC-EPSCoR/Idea stimulus funding (\$300K, ~35% effort) for Li-S batteries for electric vehicles in Spring 2018.

*H index: The h-index is an author-level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications.



Daniel C. Whitehead, PhD
Assistant Professor
Chemistry

Dan Whitehead is an assistant professor of organic chemistry. His research inorganic synthetic methodologies, and is focused on three focus areas. New reaction methodologies: Development of novel peptide based iodoarene catalysts for enantioselective synthesis. Materials

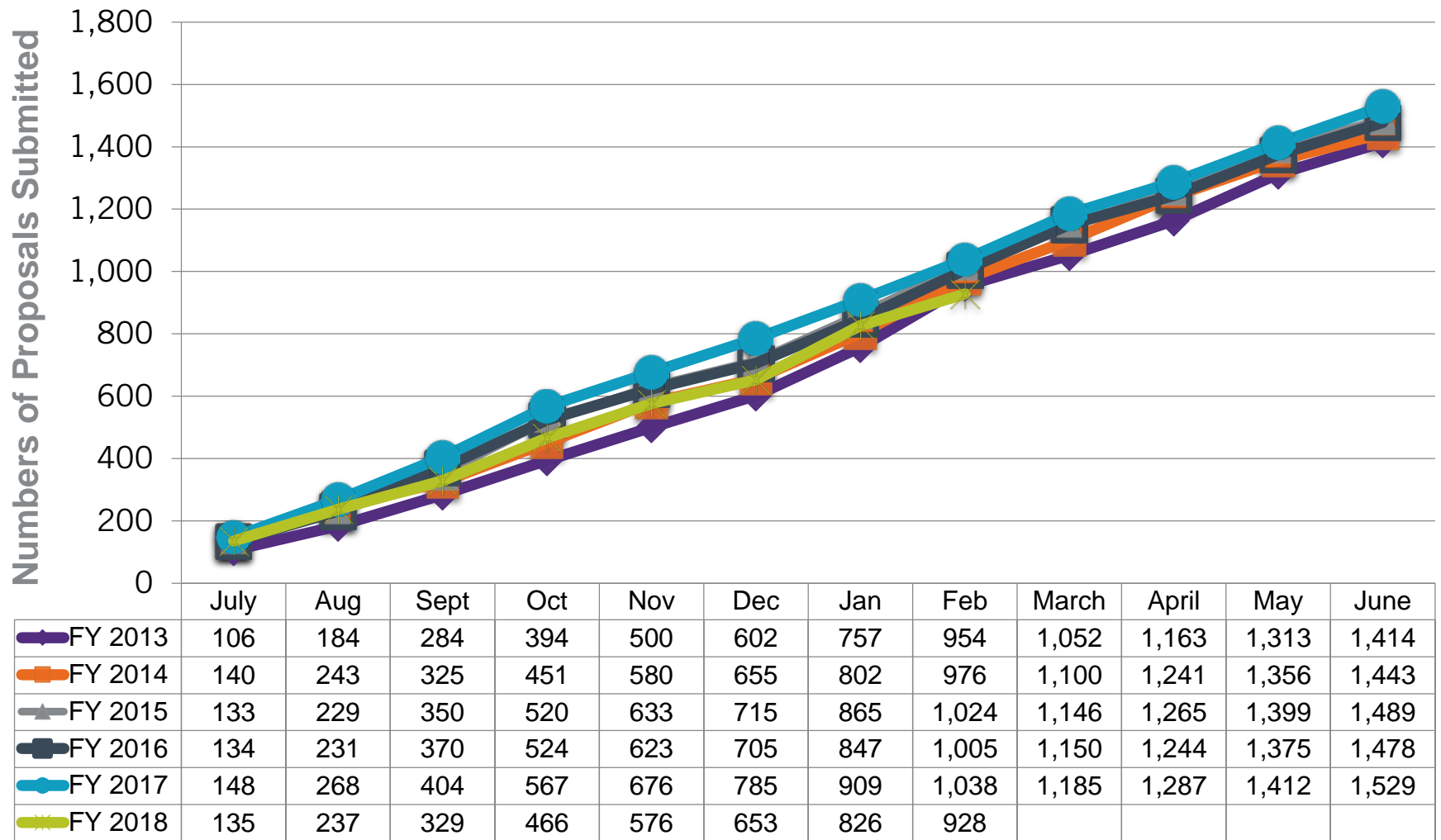
chemistry: Preparation of biodegradable, functional nanoparticles capable of capturing volatile organic pollutants, and the synthesis of X-ray opaque polymers for medical imaging. Bio-organic chemistry: Development of novel synthetic strategies for therapeutic agents for treatment of African Sleeping Sickness, Diabetes, and various intestinal diseases. His research is funded by the National Science Foundation, the Juvenile Diabetes Research Foundation, and the Clemson University Animal Co-Products Research and Education Center. Dan is a very popular and effective teaching covering courses in undergraduate and graduate level organic chemistry. Whitehead has graduated two Ph.D. students, and his current consists of seven graduate students, six undergraduates, and one postdoctoral research associate.

Selected List of Accomplishments:

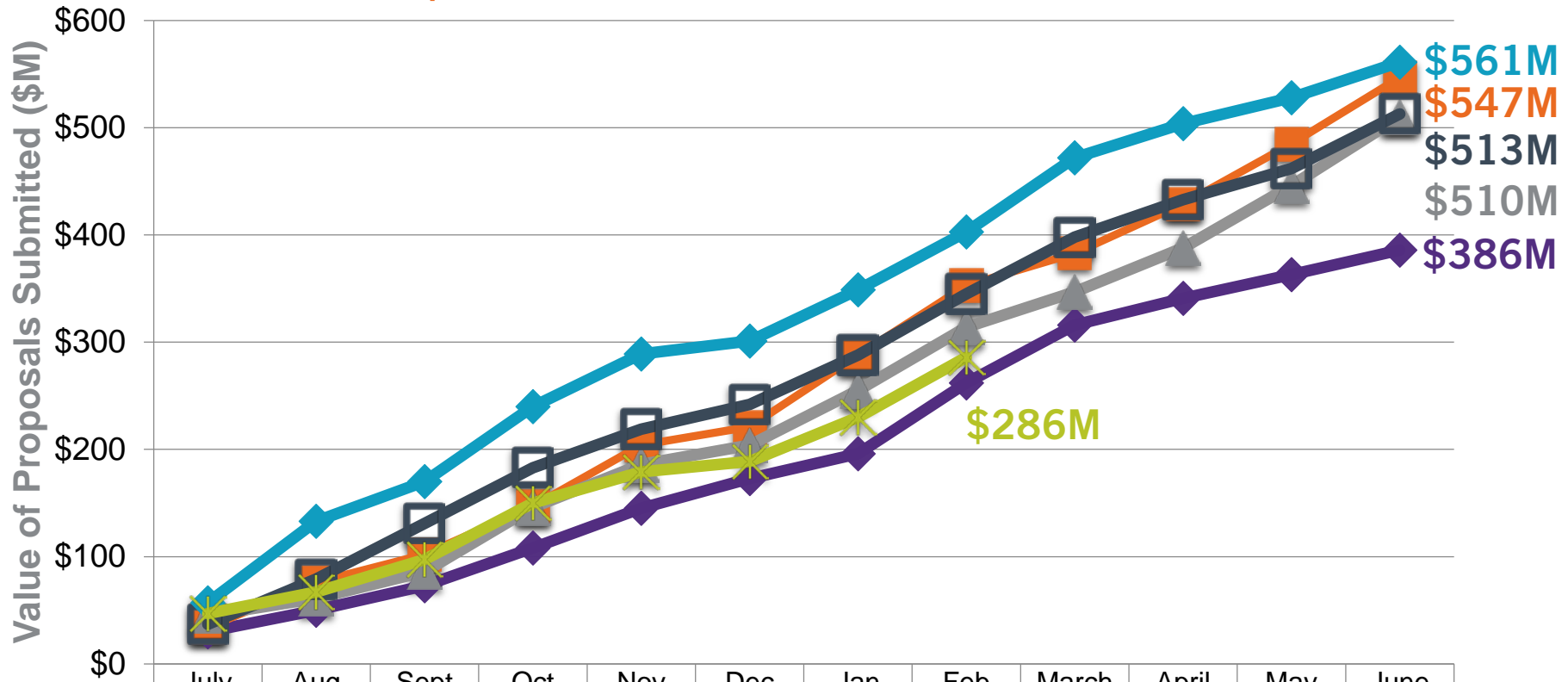
- Current Research Funding of \$550,000
- 33 publications, 18 from work at Clemson University
- 40 conference presentations
- Multi-year panelist, American Chemical Society Postdoc-to-Faculty workshop
- Founder of C3H - Clemson Chemistry Connection for Homeschoolers
- Developed Science Summer Camp at Clemson Montessori School

Research Metrics

CLEMSON CUMULATIVE SUBMISSIONS: PROPOSAL COUNTS (2013-2018)

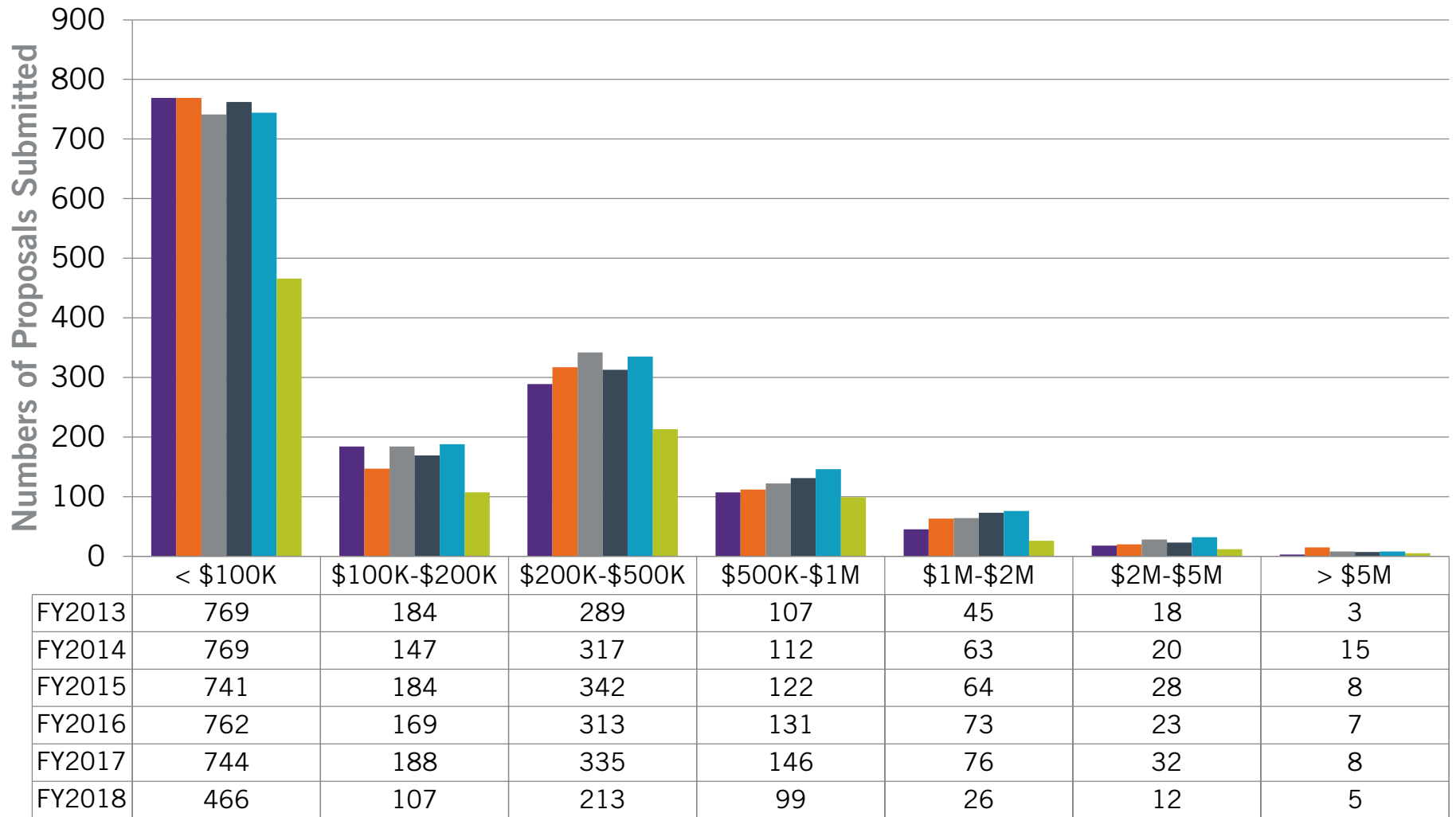


CLEMSON CUMULATIVE SUBMISSIONS: \$ REQUESTED (2013-2018)



	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
FY 2013	\$30	\$50	\$73	\$108	\$145	\$173	\$196	\$262	\$316	\$341	\$363	\$386
FY 2014	\$34	\$76	\$102	\$147	\$204	\$221	\$288	\$353	\$383	\$429	\$485	\$547
FY 2015	\$45	\$61	\$86	\$146	\$186	\$204	\$255	\$314	\$347	\$388	\$446	\$510
FY 2016	\$37	\$79	\$131	\$183	\$219	\$242	\$288	\$345	\$398	\$433	\$462	\$513
FY 2017	\$57	\$133	\$170	\$240	\$289	\$301	\$349	\$403	\$472	\$504	\$528	\$561
FY 2018	\$47	\$67	\$97	\$150	\$179	\$189	\$230	\$286				

CLEMSON CUMULATIVE SUBMISSIONS: \$ REQUESTED (2013-2018)

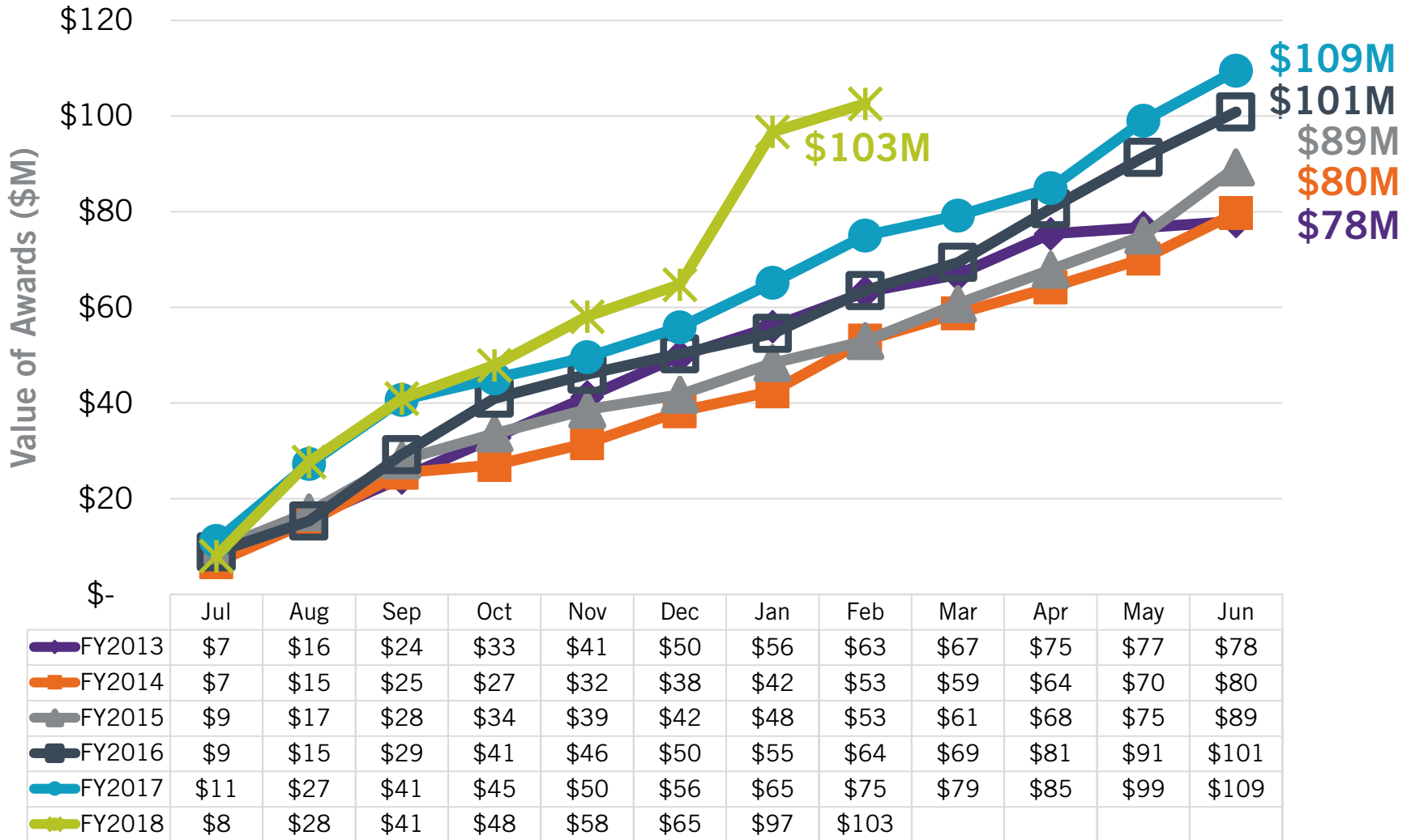


CLEMSON CUMULATIVE SUBMISSIONS: RECENT TRENDS

- We are closely tracking proposal submissions. We have noticed that the value of submissions for 2018 has not kept pace with prior years (**Graph, page 2**). We examined the reasons for this change.
- The value of proposal submission totals have dropped in the period between July and March FY 2018 compared to 2016 and compared to 2017. In months with a larger than \$10M difference in value of proposals submitted, we examined these months more closely.
- The largest discrepancies between the examined years are in the category of large proposals (>\$500K). This is true for both 2016 vs 2018 and 2017 vs 2018.
 - In 2018, we observed the numbers of proposals with a value of >\$500K decreased by 50% in November and by 40% in December compared to November and December 2016. A return to more typical patterns occurred in January and February 2018 with slowing in March 2018. The numbers of proposals with a value of >\$500K in March 2018 is 45% that for March 2016.
 - In 2018, we observed the numbers of proposals with a value of >\$500K decreased by 23% for each month with a >\$10M discrepancy (August, October and November) compared to 2017.
 - A return to more typical submissions patterns occurred in January and February 2018. There was a decrease in large proposals submitted in March 2018. The numbers of proposals with a value of >\$500K in March 2018 is 45% that for March 2017.
- Some of the discrepancy in the value of proposals submitted can be explained by submissions for very large awards in 2016 (e.g., a \$25M proposal) and in 2017 (e.g., a \$14M proposal submitted). In these cases, these programs at DOE (\$25M) and NSF (\$14M), the programs do not issue annual awards or, in the case of DOE will fund only one or two centers.
- November 2017 compared to November 2018 yielded a >\$10M discrepancy in value of proposals submitted. In November 2017, many of the larger proposals (>\$1M) were submitted (7 total, 1 funded) to highly competitive programs like NIH R01 and R35. In November 2018, only one R01 proposal was submitted to the NIH.
- In the January to March 2018 period, only two submissions, both submitted in January, were larger than \$5M, compared to four >\$5M proposals submitted in the same period in 2016 and six in 2017.

Summary: As previously reported, with the increase in research expenditures (**on page 2 in the Carnegie Research Rankings Update section**), Clemson continues on a growth trajectory. There have been multiple large awards received since 2015. Many of Clemson's most active research faculty have been the recipients of these awards and are now managing them. The combination of these factors is the likely cause of the slower pace of large proposal submission in 2018 and is an indication of Clemson approaching the limits of its research productivity with the available human and space resources.

CLEMSON CUMULATIVE AWARDS (2013-2018)



Clemson University Research
Report Card Fiscal Years
2013- 2018

	2013	2014	2015	2016	2017	2018	Data Trends
						28-Feb-18	2013-2017
RESEARCH INPUTS							
a. Proposal Submissions (Count)							
1	AAH	38	51	65	62	69	51
2	CAFLS	235	230	224	222	241	139
3	CBSHS	81	93	102	104	112	70
4	CECAS	549	555	582	617	618	376
5	COE	51	54	39	45	46	17
6	COB	7	15	13	15	7	10
7	COS	242	247	263	239	230	149
8	CCIT	12	12	6	3	5	-
9	PSA	88	90	118	97	170	98
10	VP for Res & Interdisc Inst	31	17	7	17	14	8
11	All Other	80	79	70	57	17	10
b. Proposal Submissions (Value)							
12	AAH	\$ 386,106,648	\$ 547,095,092	\$ 510,484,443	\$ 513,180,239	\$ 561,148,836	\$ 285,864,435
13	CAFLS	\$ 34,372,635	\$ 43,999,698	\$ 36,519,514	\$ 23,617,486	\$ 35,593,389	\$ 23,427,228
14	CBSHS	\$ 13,290,053	\$ 21,511,560	\$ 26,844,900	\$ 33,953,358	\$ 42,973,134	\$ 18,627,887
15	CECAS	\$ 188,119,992	\$ 283,220,894	\$ 278,574,540	\$ 298,715,448	\$ 332,003,069	\$ 149,744,718
16	COE	\$ 13,990,537	\$ 14,850,254	\$ 11,982,507	\$ 15,246,312	\$ 19,874,910	\$ 3,914,650
17	COB	\$ 975,025	\$ 2,209,136	\$ 4,025,430	\$ 2,035,401	\$ 921,817	\$ 2,970,716
18	COS	\$ 75,761,887	\$ 118,510,356	\$ 100,001,493	\$ 106,950,376	\$ 88,889,567	\$ 52,187,653
19	CCIT	\$ 37,911,464	\$ 12,473,160	\$ 2,116,258	\$ 2,219,976	\$ 1,285,424	\$ -
20	PSA	\$ 8,554,512	\$ 16,989,642	\$ 26,480,496	\$ 5,530,132	\$ 27,052,907	\$ 17,787,832
21	VP for Res & Interdisc Inst	\$ 4,191,314	\$ 5,660,278	\$ 5,861,000	\$ 6,131,772	\$ 6,079,004	\$ 11,475,148
22	All Other	\$ 5,358,506	\$ 12,820,270	\$ 5,238,588	\$ 8,516,416	\$ 4,742,914	\$ 3,404,990
c. Research Awards							
23	AAH	\$ 78,013,996	\$ 79,728,290	\$ 89,313,594	\$ 100,861,140	\$ 109,488,152	\$ 102,605,115
24	CAFLS	\$ 7,284,564	\$ 6,659,619	\$ 14,149,829	\$ 8,619,438	\$ 10,898,288	\$ 9,136,180
25	CBSHS	\$ 2,737,876	\$ 3,385,989	\$ 4,776,199	\$ 5,065,880	\$ 4,564,531	\$ 5,774,544
26	CECAS	\$ 34,201,429	\$ 37,723,081	\$ 43,231,494	\$ 45,535,064	\$ 54,000,082	\$ 63,374,346
27	COE	\$ 2,629,505	\$ 4,089,157	\$ 3,203,419	\$ 2,945,717	\$ 2,774,422	\$ 3,502,230
28	COB	\$ 2,023,722	\$ 1,114,979	\$ 1,312,998	\$ 783,916	\$ 1,179,733	\$ 1,025,915
29	COS	\$ 10,344,423	\$ 7,780,394	\$ 9,938,990	\$ 15,605,625	\$ 19,899,415	\$ 6,996,296
30	CCIT	\$ 1,617,466	\$ 5,675,854	\$ 668,873	\$ 819,396	\$ 477,594	\$ 1,356,010
31	PSA	\$ 14,827,292	\$ 12,284,142	\$ 9,588,294	\$ 12,965,629	\$ 7,908,591	\$ 4,013,387
32	VP for Res & Interdisc Inst	\$ 1,790,060	\$ 268,882	\$ 573,565	\$ 5,139,315	\$ 5,030,743	\$ 3,966,517
33	All Other	\$ 333,188	\$ 156,039	\$ 1,213,903	\$ 1,980,188	\$ 1,235,065	\$ 1,702,255
d. Notable Awards							
34	NSF CAREER Awards (by start date)	4	1	3	5	7	3
35	NIH R01-Equivalent Awards (by start date)	-	-	2	2	2	3
36	NIH Career Awards (by start date)	1	-	-	-	-	-
37	Air Force Young Investigator Awards	-	-	1	2	-	-
38	DOE Early Career Awards	1	-	-	-	-	-
e. Supporting Workforce							
39	Graduate Student Enrollment	4,206	4,372	4,670	4,664	4,425	4,985
40	Sponsored Graduate Research Assistants	822	745	707	693	696	761
41	Postdoctoral Fellows	48	64	83	85	90	97
42	Research Faculty: Permanent 100% Non-E&G Funded	6	6	6	11	17	14
43	Research Faculty: Temporary 100% Non-E&G Funded	18	18	15	14	24	27
RESEARCH PROCESS							
f. Sponsored Research Expenditures by Business Unit **							
44	AAH	\$ 504,683	\$ 378,112	\$ 419,440	\$ 1,104,015	\$ 1,324,634	\$ 744,020
45	CAFLS	\$ 8,768,472	\$ 7,706,442	\$ 6,752,344	\$ 8,631,050	\$ 11,066,587	\$ 6,450,378
46	COB	\$ 1,239,726	\$ 1,200,289	\$ 1,081,898	\$ 958,613	\$ 867,778	\$ 455,160
47	CECAS	\$ 34,969,267	\$ 34,550,052	\$ 34,968,963	\$ 37,483,798	\$ 42,945,440	\$ 24,334,373
48	CBSHS	\$ 3,050,080	\$ 2,817,714	\$ 3,680,307	\$ 4,068,139	\$ 4,413,360	\$ 2,812,120
49	COE	\$ 3,286,747	\$ 3,256,328	\$ 3,793,915	\$ 2,510,444	\$ 2,580,041	\$ 1,476,201
50	COS	\$ 13,209,952	\$ 10,501,024	\$ 9,286,770	\$ 11,327,997	\$ 14,777,229	\$ 9,226,673
51	CCIT	\$ 1,996,620	\$ 1,631,199	\$ 3,400,258	\$ 2,775,609	\$ 426,836	\$ 130,248
52	PSA	\$ 4,746,123	\$ 4,858,414	\$ 5,847,737	\$ 5,588,699	\$ 5,749,370	\$ 3,819,757
53	VP for Res & Interdisc Inst	\$ 1,878,676	\$ 1,302,734	\$ 1,892,429	\$ 3,531,216	\$ 3,930,146	\$ 2,371,988
54	All Other	\$ 1,738,332	\$ 1,705,355	\$ 2,183,847	\$ 1,513,750	\$ 1,465,867	\$ 841,641

Clemson University Research
Report Card Fiscal Years
2013- 2018

	2013	2014	2015	2016	2017	2018	Data Trends
						28-Feb-18	2013-2017
g. Sponsored Research Expenditures by Innovation Cluster	\$ 75,388,679	\$ 69,907,663	\$ 73,307,908	79,493,329	89,547,288	52,662,559	
55 Advanced Materials	\$ 14,258,840	\$ 11,288,090	\$ 10,713,746	\$ 10,385,364	\$ 10,704,113	\$ 6,202,047	
56 Cyberinfrastructure and Big Data Science	\$ 10,277,111	\$ 10,513,388	\$ 10,137,409	\$ 8,874,268	\$ 8,125,965	\$ 4,442,115	
57 Energy, Transportation and Advanced Manufacturing	\$ 4,687,300	\$ 5,680,684	\$ 7,236,983	\$ 7,645,169	\$ 17,772,810	\$ 9,935,641	
58 Health Innovation	\$ 13,115,231	\$ 10,248,431	\$ 10,188,088	\$ 12,470,389	\$ 16,316,309	\$ 9,642,694	
59 Human Resilience	\$ 8,200,415	\$ 7,708,375	\$ 9,700,880	\$ 9,762,842	\$ 7,780,667	\$ 5,289,453	
60 Sustainable Environments	\$ 18,331,776	\$ 16,877,332	\$ 17,926,296	\$ 21,723,962	\$ 18,924,983	\$ 11,605,974	
61 Other	\$ 6,518,006	\$ 7,591,364	\$ 7,404,505	\$ 8,631,335	\$ 9,922,442	\$ 5,544,634	
h. Sponsored Research Expenditures by Funding Source	\$ 75,388,679	\$ 69,907,663	\$ 73,307,908	79,493,329	89,547,288	52,662,559	
62 Federal Gov	\$ 62,890,679	\$ 56,872,229	\$ 58,457,288	\$ 65,135,890	\$ 74,571,410	\$ 43,003,168	
63 Foundations, Societies, and Associations	\$ 4,221,409	\$ 4,294,121	\$ 4,741,795	\$ 4,137,246	\$ 4,696,551	\$ 3,042,810	
64 Industry/Other	\$ 4,930,465	\$ 5,641,543	\$ 6,071,417	\$ 6,870,782	\$ 6,793,645	\$ 3,546,591	
65 International	\$ 813,542	\$ 577,879	\$ 765,179	\$ 778,835	\$ 517,558	\$ 176,248	
66 Local Gov	\$ 597,732	\$ 614,527	\$ 578,235	\$ 530,909	\$ 523,786	\$ 338,880	
67 State Gov	\$ 1,934,852	\$ 1,907,364	\$ 2,693,993	\$ 2,039,667	\$ 2,444,338	\$ 2,554,862	
i. Sponsored Research Expenditures per T/TT							
68 AAH	\$ 3,299	\$ 2,264	\$ 2,343	\$ 5,841	\$ 8,177	\$ 4,593	
69 CAFLS	\$ 88,570	\$ 81,120	\$ 69,612	\$ 84,618	\$ 105,396	\$ 60,806	
70 COB	\$ 14,415	\$ 13,047	\$ 11,510	\$ 9,683	\$ 8,855	\$ 4,507	
71 CECAS	\$ 169,754	\$ 160,698	\$ 163,406	\$ 163,685	\$ 194,323	\$ 115,878	
72 CBSHS	\$ 27,982	\$ 26,853	\$ 33,764	\$ 42,376	\$ 34,751	\$ 22,863	
73 COE	\$ 54,779	\$ 51,688	\$ 62,195	\$ 38,037	\$ 44,483	\$ 27,337	
74 COS	\$ 95,724	\$ 72,421	\$ 61,912	\$ 77,589	\$ 95,956	\$ 60,734	
75 CU average (Total exp/Total T/TT faculty)	\$ 83,858	\$ 75,089	\$ 78,826	\$ 85,753	\$ 84,297	\$ 42,388	
RESEARCH OUTPUTS/OUTCOMES							
76 Doctorates Awarded (Aug, Dec, May)	187	217	237	233	231	142	
77 STEM Doctorates Awarded (Aug, Dec, May)	118	153	165	138	156	107	
78 Disclosures	102	129	70	60	65	27	
79 Patents	16	15	15	14	18	8	
80 Licenses/Options	9	7	7	5	10	5	
81 Licensing Revenue	\$ 1,134,289	\$ 762,811	\$ 360,131	\$ 354,827	\$ 539,490	\$ 307,077	
82 Start-up Companies (based on licenses/options above)	1	4	4	2	3	2	
THE BOTTOM LINE	2013	2014	2015	2016	2017	2018	
Research Awards	\$ 78,013,996	\$ 79,728,290	\$ 89,313,594	\$ 100,861,140	\$ 109,488,152	\$ 102,605,115	
Other Sponsored Program Awards (CCIT Medicaid)	\$ 24,009,167	\$ 28,567,490	\$ 32,532,784	\$ 58,187,130	\$ -	\$ -	
* Awards Total	\$ 102,023,163	\$ 108,295,780	\$ 121,846,378	\$ 159,048,270	\$ 109,488,152	\$ 102,605,115	
** Research Expenditures	\$ 75,388,679	\$ 69,907,663	\$ 73,307,908	\$ 79,493,329	\$ 89,547,288	\$ 52,662,559	
Other Sponsored Programs Expenditures	\$ 24,009,167	\$ 28,567,490	\$ 32,532,784	\$ 58,187,130	\$ -	\$ -	
Less CURF Indirect Expenditures	\$ 1,303,354	\$ 743,951	\$ 684,695	\$ 574,081	\$ 255,982	\$ 82,270	
Sponsored Research and Programs Expenditures	\$ 98,094,492	\$ 97,731,202	\$ 105,155,997	\$ 137,106,378	\$ 89,291,306	\$ 52,580,289	
* See section c. above							
** See section f. above							

Research Report Card Trends

This brief report addresses areas of decline outlined in the Research Report Card for years 2013 through 2017 for units demonstrating a persistent decline.

College	Observations	Action
CAFLS	<ul style="list-style-type: none"> • Line 2 – Submission Counts: The difference in submissions is approximately 6% over four years or a difference of 13 proposals. From 2016 to 2017, CAFLS has regained strength in this area with 241 submissions – 9% growth. • Line 13 – Submission Value: CAFLS has been trying to increase submissions of large multi-disciplinary and multi institutional proposals. Announced RFPs applicable to CAFLS vary from year to year. With the goal of submitting larger proposals, CAFLS’s submissions total has improved by 51% in 2017 compared to 2016. • Line 24 – Awards: There was a \$4M award (2010682) to CAFLS in 2015 to James Frederick came as a single lump, which made increased the 2015 value relative to other years. CAFLS awards are usually in the range of \$7-9M. CAFLS has completed FY2017 with awards totaling \$11M representing 26% growth over 2016. 	<p>Currently, the university is planning to add faculty members in CAFLS to address teaching demand, which will allow more time for research by faculty.</p> <p>Further, CAFLS is completing its strategic planning and will identify specific areas of strategic importance for each department. These actions will help to reverse the pattern in the positive direction.</p>
CAAH	<ul style="list-style-type: none"> • Line 12 – Submission Value: There is a downward trend in proposal submission values beginning in 2014 and continuing through 2017. In 2015, there were several large submissions including a \$4M proposal and three proposals greater than \$1M. In 2016, there were four proposals with values between \$1M and \$2M. There were no large proposals (>\$1M) submitted by CAAH in 2017. 	<p>Action will be taken if sign of weakness is detected.</p>
CCIT	<ul style="list-style-type: none"> • Line 8 – Submission Counts: Research has not been the primary mission of CCIT. However, a small number of research proposals, in the range of 10-15 proposals/year, are submitted annually by CCIT due to the research interests of previous CIO, Jim Bottum. With his retirement as well as the recent emphasis on the cybersecurity challenges in the University, the attention on the research proposal submission has become less critical. This trend has remained unchanged in 2017. • Line 19 – Submission Value: In 2013, CCIT submitted a proposal worth \$36M (2013001037) to the NSF. In 2014, CCIT submitted a proposal worth \$10M (2014001325) to the NSF. These large proposals caused the submission totals for 2013 and 2014 to be significantly higher than average. As indicated above, CCIT annual research proposal submission has been historically a small number. This trend has remained unchanged in 2017. • Line 30 – Awards: In 2014, CCIT was awarded \$5M (2009949) for James Bottum's NSF project. This award is significant enough to disrupt the funding trends for CCIT. This trend has remained unchanged in 2017. 	<p>Russell Kaurlo, the new CIO for Clemson University, arrived in July 2017. He is in the process of reviewing the focus of CCIT including its role in research proposal submissions</p>

<p>All Other</p>	<ul style="list-style-type: none"> • Line 11 and Line 22 – Submission counts & values: All other category consists of Economic Development, Libraries, Facilities, Student Affairs, and Cooperative Extension, where research grants are not first priority. As a result, a high degree of variability occurs in this category. The trends observed in 2016 remained largely unchanged in 2017. 	<p>No action is needed</p>
<p>COB</p>	<ul style="list-style-type: none"> • Line 17 - Submission values: The peak submissions occurred in 2015 was a result of several large proposal submissions in the same year. Otherwise, College of Business maintains an average of \$1M - \$2M/year proposal submission. Colleges of Business nationwide have low rates of extramural funding; these trends are not unique to Clemson. There has been little change in submission values for 2017; the trend remains largely unchanged. • Line 28 – Awards: The research program for COB is comparatively small (\$1-2M range) while this College serves a very large student population. Although there has been a decrease during 2013-2016 period, there has been recovery of awards in 2017 with awards totals for the COB rebounding by 51% to \$1.2M. 	<p>Action will be taken if sign of weakness is detected.</p>
<p>Advanced Materials</p>	<ul style="list-style-type: none"> • Line 55 – Expenditures: Annual expenditures of this cluster was \$14M in 2013 and since then has averaged about \$10-11 M. Thus, there seemed to be a slowing of expenditures for projects in this Innovation Cluster. However, with the significant recent awards (e.g., \$6M EPSCoR Track-1, \$6M EPSCoR Track-2, and \$3.2M DARPA), this trend reversed in 2017 with 3% growth over 2016 totals. 	<p>Action will be taken if sign of weakness is detected.</p>
<p>Local Govt.</p>	<ul style="list-style-type: none"> • Line 66 – Expenditures: Totals for local government have been historically low (~\$500K/year) but appear exaggerated in the sparklines. There has been a slight decline in local government expenditures since 2014. These awards are small and tend to be annual -- so small shifts in awards will be apparent in expenditures. For example, the difference between 2016 and 2017 expenditures from local government sources is 2%. 	<p>Action will be taken if sign of weakness is detected.</p>
<p>CURF</p>	<ul style="list-style-type: none"> • Line 78 – Disclosures: The numbers of disclosures per year is highly variable. In 2013 and 2014, CURF was processing all the BIOE senior design disclosures; after 2014, CURF no longer supported this process. In addition, Johnell Brooks with AuE submitted a significant number (between 10-15) of disclosures in 2014 for driving scenarios. Launch of the technology maturation fund in 2014 was accompanied by a caveat that applicants demonstrate at least one disclosure. There has been an increase in disclosures of 8% from 2016 to 2017. • Line 81 – Licensing revenue: An overpayment by a software company in 2013 led to an artificial inflation of licensing revenue. Repayment of that sum took place over 2014-2016. In 2014, royalty downturn was mitigated by a one-time \$300K payout on a biomedical device license by a company beginning the IPO process. Following the conclusion of the repayment, there has been a 52% increase in licensing revenue from FY 2016 to FY 2017. 	<p>We are currently working on a new plan for CURF.</p>

Significant Awards

Clemson University's Top Ten Awards
Received Between December 20, 2017 and March 27, 2018

PI	Award	(Sponsor)Project Title	Abstract
Alain Litwin	\$10M	(PATIENT-CENTERED OUTCOMES RESEARCH INSTITUTE, PCORI) Patient-Centered Model of HCV Care for People Who Inject Drugs	Clemson University collaborates with hospitals, universities, federal agencies, and drug manufacturers to develop and improve treatment protocols for Hepatitis C Virus (HCV). HCV, affecting 143 million individuals worldwide in 2015, is spread by contact with contaminated blood, and if left untreated, can lead to liver failure.
Venkat Krovi	\$1.0M	(DOD – ADVANCED MANUFACTURING INSTITUTE) Smart Companion Robots for Automotive Assembly	Joined by private industry, a team of Clemson researchers will develop a Smart Companion Robot (SCR) to support human activities in automotive final assembly. The researchers liken a SCR to <i>Star Wars</i> character R2D2, a smart assistant who can communicate with plant systems and with the humans working in the plant.
Pamela Murray-Tuite	\$800K	(NSF) CRISP/Type 2, Collaborative Research: Coordinated, Behaviorally-Aware Recovery from Transportation and Power Disruptions (CBAR-tpd)	Natural disasters like hurricanes affect human life at multiple simultaneous levels. Researchers from Clemson and Virginia Tech will examine existing data, including disaster response communications on social media, to develop an effective and efficient coordinated recovery of power and transportation services following disruption.
Nishanth Tharayil	\$600K	(NSF) COLLABORATIVE RESEARCH: Elucidating the Chemical Plasticity of Fine Roots in Response to Soil Heterogeneities and Developing a Better Parameter to Forecast Fine Root Decomposition	Fine roots, small roots supporting plant matter, plays a large role in the global carbon cycle. However, the role of fine roots are not well understood. Clemson researchers will join researchers at University of Minnesota will develop a better model of fine roots role in the carbon cycle with the aim of supporting better prediction of global carbon and nutrient cycling.
Sara Riggs	\$550K	(NSF) CAREER: Collaboratively Perceiving, Comprehending, and Projecting into the Future: Supporting Team Situational Awareness with Adaptive Multimodal Displays	Sara Riggs, collaborating with Walgreens and ClemsonLIFE, will redesign a computer workstation to be used in Walgreens to increase the number of people with disabilities employed and retained. This project will serve as a bridge between the disparate fields within human factors to develop new models, algorithms, and design guidelines to support team cognition and human-machine collaboration.

Suyi Li	\$500K	(NSF) CAREER: Leveraging the Three-Dimensional Multi-Stability from Origami Folding to Synthesize Multi-Functional Materials	Dr. Li, an assistant professor in mechanical engineering, will use the principles of origami, the art of folding paper, to develop new materials and new structures which can unfold from 2-D to 3-D structures. These advances can be used to develop novel deployable structures, self-folding robotics and many other origami-inspired engineering systems.
Joshua Bostwick	\$500K	(NSF) CAREER: Elastocapillary Fluid Mechanics: Spreading, Splashing, and Instability	Elastocapillary phenomena, involving liquid transport on soft substrates, is common in nature, medicine and industry. The researcher will examine elastocapillarity with specific impacts in industrial coating processes, microfluidics and lab-on-a-chip platforms, aerosol drug delivery on biological systems, forensic science analysis, manufacture of flexible electronics using immersion lithography, and rapid prototyping industries using additive manufacturing techniques.
Lawrence Murdoch	\$500K	(LOS ALAMOS LABORATORY, DOE) Autonomous Monitoring of Wellbore Integrity Applying Time Reverse Nonlinear Elastic Wave Spectroscopy (TR NEWS) and Fiber Optic Sensing and Communication	Clemson University researchers aims to develop an autonomous sensor system for detecting the integrity of wellbores. This system, optimally, will be deployable for long-term unattended monitoring of wellbores for stress changes. This system will detect developing issues that would lead to diminished wellbore integrity and leaking.
Christopher Parkinson	\$500K	(NSF) COLLABORATIVE RESEARCH: DIMENSIONS US-BIOTA-SAO PAULO: Scales of Biodiversity – Integrated Studies of Snake Venom Evolution and Function Across Multiple Levels of Diversity	An international team of researchers, including scientists in Brazil and Central America, are examining snake venom and snake venom delivery systems to provide clues to venomous snakes’ diversification and evolutionary adaptation. The researchers will collect specimens from 130 species of venomous snake to aid the examination of these snakes’ genetic and physiological adaptation.
Samantha Price	\$400K	(NSF) Disentangling the Ecological Drivers of Teleost Body Form Diversity	Working with the Smithsonian’s extensive Natural History collection, researchers and their students have developed an extensive museum based data collection project focused on Teleost, an infraclass of fish including cichlids and salmon. The researchers have photographed more than 2,900 specimens in the Smithsonian collection. The collection and dissemination of these data promotes greater access to and understanding of diversification among Teleost.