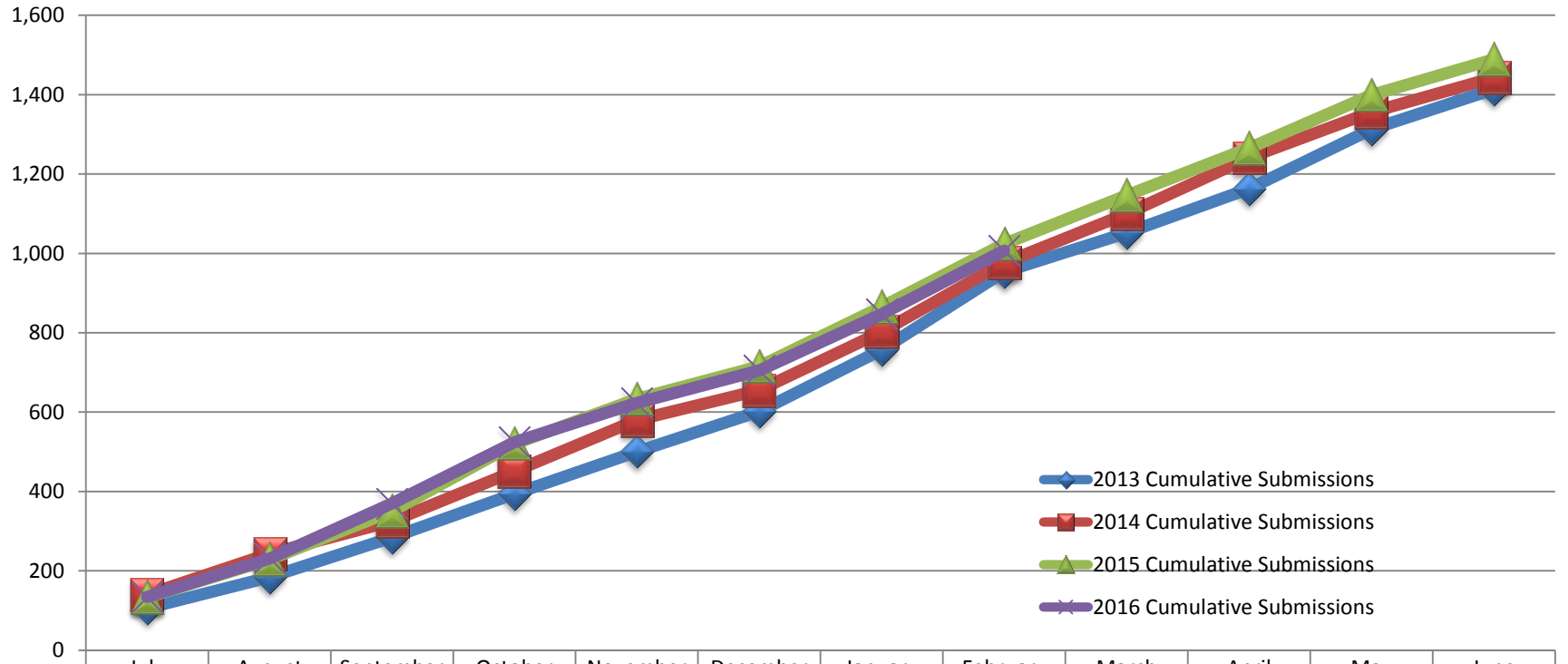
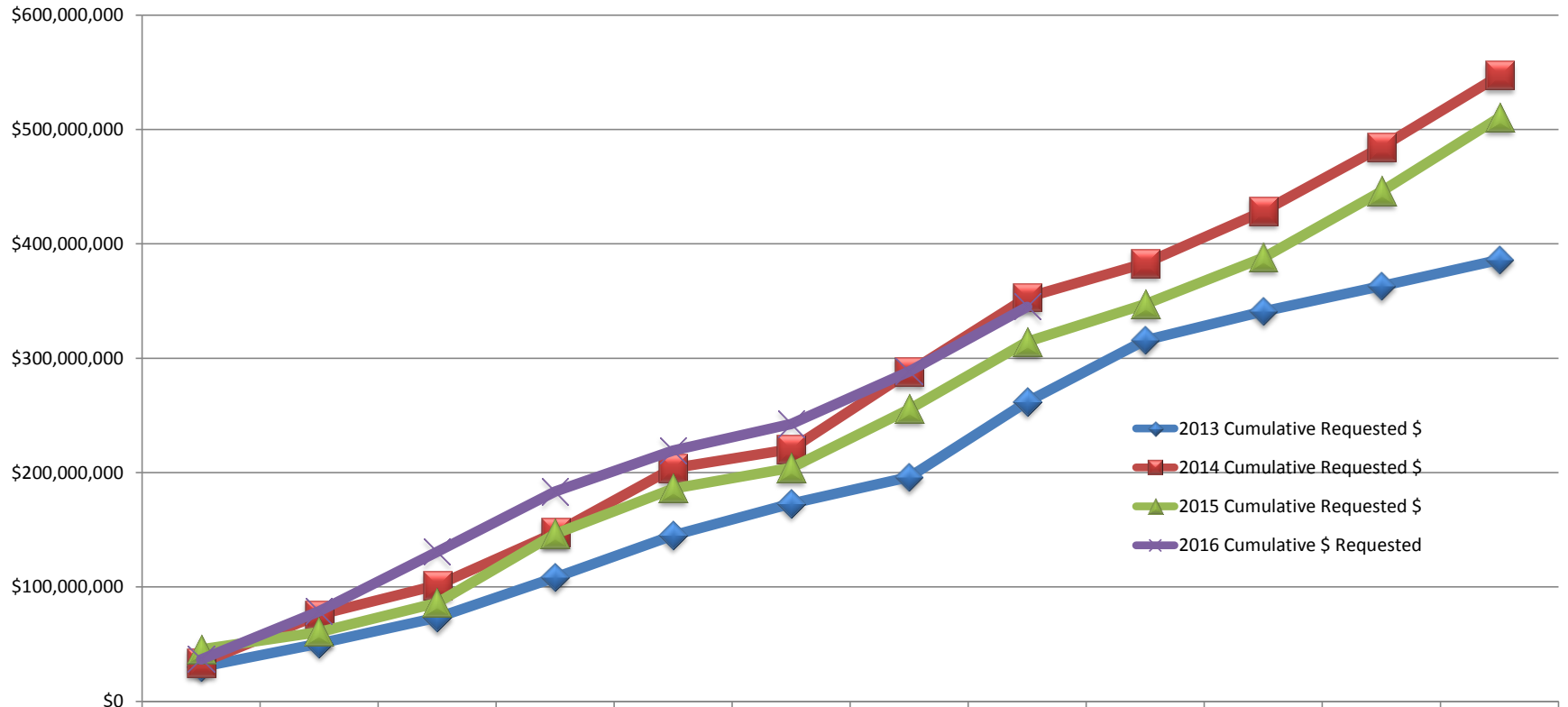


CU Cumulative Monthly Proposal Submissions



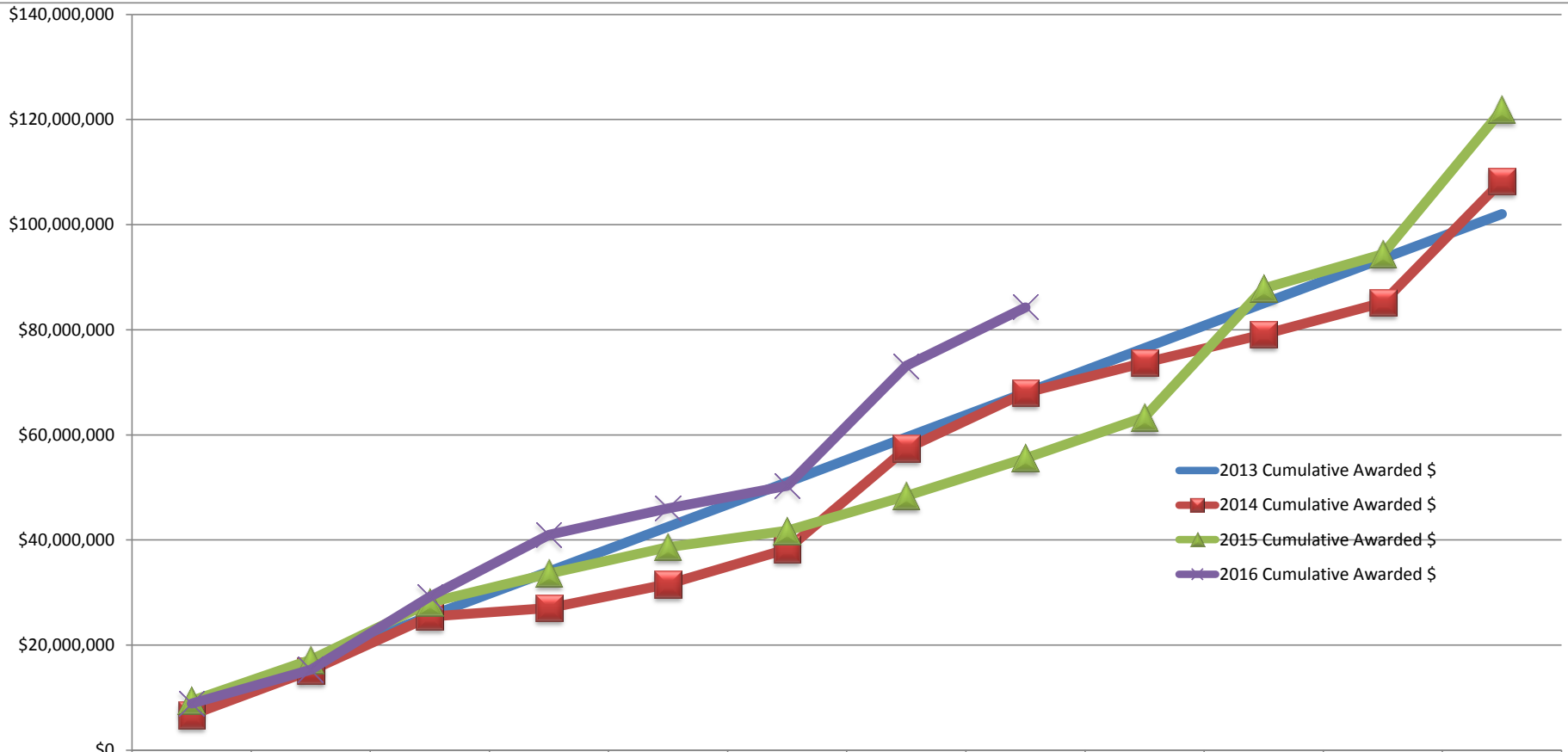
	July	August	September	October	November	December	January	February	March	April	May	June
2013 Cumulative Submissions	106	184	284	394	500	602	757	954	1,052	1,163	1,313	1,414
2014 Cumulative Submissions	140	243	325	451	580	655	802	976	1,100	1,241	1,356	1,443
2015 Cumulative Submissions	133	229	350	520	633	715	865	1,024	1,146	1,265	1,399	1,489
2016 Cumulative Submissions	134	231	370	524	623	705	847	1,007				

CU Monthly Proposal Submissions



	July	August	September	October	November	December	January	February	March	April	May	June
2013 Cumulative Requested \$	30,056,014	50,413,490	73,269,777	108,336,660	145,023,220	172,929,729	196,049,959	261,881,270	315,709,057	340,818,137	363,058,814	386,106,648
2014 Cumulative Requested \$	33,664,376	75,759,698	101,579,468	147,497,340	204,022,989	220,531,603	287,928,566	353,197,931	382,986,669	428,559,749	484,783,051	547,095,092
2015 Cumulative Requested \$	45,414,534	60,665,263	86,103,003	146,496,214	186,110,581	204,061,298	255,423,300	314,319,566	347,258,156	387,946,189	445,924,797	510,484,443
2016 Cumulative \$ Requested	36,619,685	78,640,306	130,768,465	183,464,643	219,263,034	242,492,812	288,475,251	344,926,930				

CU Cumulative Awards By Month



	July	August	September	October	November	December	January	February	March	April	May	June
2013 Cumulative Awarded \$	8,501,930	17,003,861	25,505,791	34,007,721	42,509,651	51,011,582	59,513,512	68,015,442	76,517,372	85,019,303	93,521,233	102,023,163
2014 Cumulative Awarded \$	6,711,742	15,170,276	25,428,269	27,062,064	31,588,564	38,254,580	57,372,543	67,996,372	73,729,775	79,105,718	85,165,252	108,295,780
2015 Cumulative Awarded \$	9,417,496	17,187,059	28,080,550	33,619,198	38,648,996	41,771,992	48,365,016	55,569,400	63,329,972	87,894,717	94,350,143	121,846,378
2016 Cumulative Awarded \$	8,855,728	15,328,000	29,207,937	40,993,285	46,012,111	50,309,043	73,133,500	84,266,179				

**Clemson University
Research Report Card
Fiscal Year 2016**

Final 3rd Qtr Report Will Be Distributed At BoT Meeting

		2011	2012	2013	2014	2015	2016 Total As of 2/29/16	Data Trends 2011-2015
RESEARCH INPUTS								
a. Proposal Submissions (Count)		1,376	1,408	1,414	1,443	1,489	1,007	
1	AAH	55	63	40	54	64	57	
2	CAFLS	328	352	340	304	309	169	
3	CBBS	37	17	23	36	35	25	
4	COES	676	700	686	724	757	570	
5	HEHD	91	84	115	125	118	56	
6	SOE	0	0	0	0	-	29	
7	CCIT	8	12	11	11	6	-	
8	PSA	151	157	168	163	154	77	
9	VP for Res & Interdisc Inst	15	13	11	9	5	13	
10	All Other	15	10	20	17	41	11	
b. Proposal Submissions (Value)		\$ 502,157,776	\$ 398,713,988	\$ 386,106,648	\$ 547,095,092	\$ 510,484,443	\$ 344,926,930	
11	AAH	\$ 7,325,668	\$ 9,523,827	\$ 3,650,477	\$ 14,984,174	\$ 2,470,314	\$ 7,997,626	
12	CAFLS	\$ 121,371,081	\$ 71,559,256	\$ 75,291,981	\$ 76,268,616	\$ 6,802,669	\$ 24,573,269	
13	CBBS	\$ 7,616,801	\$ 7,907,829	\$ 3,981,672	\$ 5,922,989	\$ 2,203,594	\$ 7,374,910	
14	COES	\$ 298,107,680	\$ 249,023,166	\$ 224,796,342	\$ 369,099,628	\$ 102,344,512	\$ 261,855,541	
15	HEHD	\$ 26,838,493	\$ 27,529,360	\$ 21,875,971	\$ 32,875,243	\$ 2,009,899	\$ 12,548,354	
16	SOE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,893,792	
17	CCIT	\$ 2,012,226	\$ 876,679	\$ 37,896,464	\$ 12,458,160	\$ 2,116,258	\$ -	
18	PSA	\$ 28,126,835	\$ 22,687,186	\$ 15,014,300	\$ 21,633,793	\$ 21,948,519	\$ 6,351,226	
19	VP for Res & Interdisc Inst	\$ 1,726,026	\$ 6,687,123	\$ 676,125	\$ 5,339,755	\$ 833,705	\$ 9,269,292	
20	All Other	\$ 9,032,966	\$ 2,919,562	\$ 2,923,316	\$ 8,512,734	\$ 15,868,196	\$ 2,062,920	
c. Awards *		\$ 95,396,252	\$ 99,020,700	\$ 102,023,163	\$ 108,295,780	\$ 121,846,378	\$ 84,266,179	
21	AAH	\$ 2,279,404	\$ 969,469	\$ 185,075	\$ 590,154	\$ 687,135	\$ 1,312,964	
22	CAFLS	\$ 13,228,013	\$ 11,861,247	\$ 9,933,616	\$ 9,000,911	\$ 17,725,969	\$ 8,866,926	
23	CBBS	\$ 2,566,791	\$ 2,077,129	\$ 1,729,794	\$ 1,572,604	\$ 1,676,742	\$ 707,095	
24	COES	\$ 44,333,016	\$ 46,597,203	\$ 41,123,732	\$ 43,162,183	\$ 49,709,012	\$ 32,974,675	
25	HEHD	\$ 5,898,881	\$ 5,287,325	\$ 4,955,945	\$ 7,017,521	\$ 7,470,101	\$ 2,666,977	
26	SOE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,225,654	
27	CCIT	\$ 18,477,271	\$ 21,051,844	\$ 24,995,729	\$ 34,243,344	\$ 33,201,657	\$ 21,800,967	
28	PSA	\$ 5,445,654	\$ 9,776,557	\$ 16,444,018	\$ 12,284,142	\$ 9,588,294	\$ 8,381,572	
29	VP for Res & Interdisc Inst	\$ 984,725	\$ 1,158,652	\$ 2,192,465	\$ 268,882	\$ 573,565	\$ 4,646,950	
30	All Other	\$ 2,182,497	\$ 241,274	\$ 462,789	\$ 156,039	\$ 1,213,903	\$ 682,398	
d. Notable Awards								
31	NSF CAREER Awards (by start date)	6	5	4	1	3	5	
32	NIH R01-Equivalent Awards (by start date)	1	3	0	0	2	1	
33	NIH Career Awards (by start date)	0	0	1	0	-	-	
e. SUPPORTING WORKFORCE:								
34	Graduate Student Enrollment	3,994	4,078	4,206	4,372	4,670	4,664	
35	Sponsored Graduate Research Assistants	852	805	822	745	707	555	
36	Postdoctoral Fellows	47	44	48	64	83	85	
37	Research Faculty: Permanent 100% Non-E&G Funded	3	3	6	6	6	11	
38	Research Faculty: Temporary 100% Non-E&G Funded	21	24	18	18	15	14	
RESEARCH PROCESS								
f. Sponsored Research Expenditures by Business Unit **				\$ 75,388,679	\$ 69,907,663	\$ 73,307,908	47,198,087	
39	AAH			\$ 504,683	\$ 378,112	\$ 419,826	\$ 512,890	
40	CAFLS			\$ 13,786,867	\$ 11,367,002	\$ 9,948,298	\$ 7,507,684	
41	CBBS			\$ 1,906,528	\$ 1,585,854	\$ 1,686,018	\$ 1,099,937	
42	COES			\$ 43,244,291	\$ 41,407,944	\$ 41,147,344	\$ 25,931,603	
43	HEHD			\$ 5,586,560	\$ 5,671,050	\$ 6,782,152	\$ 1,892,153	
44	SOE			\$ -	\$ -	\$ -	\$ 1,613,274	
45	CCIT			\$ 1,996,620	\$ 1,631,199	\$ 3,400,258	\$ 2,147,215	
46	PSA			\$ 5,294,784	\$ 5,598,121	\$ 5,765,430	\$ 3,592,400	
47	VP for Res & Interdisc Inst			\$ 1,330,014	\$ 563,027	\$ 372,808	\$ 1,755,347	
48	All Other			\$ 1,738,332	\$ 1,705,355	\$ 3,785,775	\$ 1,145,583	

**Clemson University
Research Report Card
Fiscal Year 2016**

Final 3rd Qtr Report Will Be Distributed At BoT Meeting

		2011	2012	2013	2014	2015	2016	Data Trends
							Total As of 2/29/16	2011-2015
g. Sponsored Research Expenditures by Emphasis Area				\$ 75,388,679	\$ 69,907,663	\$ 73,307,908	47,198,087	
49	Advanced Materials			\$ 14,258,840	\$ 11,288,090	\$ 10,713,746	\$ 6,314,981	
50	Automotive & Transportation Technology			\$ 4,687,300	\$ 5,680,684	\$ 7,236,984	\$ 4,461,697	
51	Biotechnology & Biomedical Sciences			\$ 11,953,360	\$ 9,459,648	\$ 10,060,574	\$ 6,725,727	
52	Family & Community Living			\$ 5,110,644	\$ 4,332,146	\$ 4,989,424	\$ 3,051,821	
53	General Education			\$ 2,618,598	\$ 2,929,771	\$ 4,023,792	\$ 2,100,630	
54	Information & Communication Technology			\$ 10,277,111	\$ 10,513,388	\$ 10,137,409	\$ 6,028,449	
55	Leadership & Entrepreneurship			\$ 1,633,044	\$ 1,235,240	\$ 818,397	\$ 650,989	
56	Other			\$ 6,518,006	\$ 7,591,364	\$ 7,401,285	\$ 5,054,479	
57	Sustainable Environment			\$ 18,331,776	\$ 16,877,332	\$ 17,926,295	\$ 12,809,314	
h. Sponsored Research Expenditures by Funding Source				\$ 75,388,679	\$ 69,907,663	\$ 73,307,908	\$ 47,198,087	
58	Federal Gov			\$ 62,890,679	\$ 56,872,229	\$ 58,457,288	\$ 38,020,374	
59	Foundations, Societies, and Associations			\$ 4,221,409	\$ 4,294,121	\$ 4,743,649	\$ 2,494,708	
60	Industry/Other			\$ 4,930,465	\$ 5,641,543	\$ 6,069,562	\$ 4,448,396	
61	International			\$ 813,542	\$ 577,879	\$ 765,179	\$ 479,671	
62	Local Gov			\$ 597,732	\$ 614,527	\$ 578,235	\$ 345,802	
63	State Gov			\$ 1,934,852	\$ 1,907,364	\$ 2,693,993	\$ 1,409,138	
i. Sponsored Research Expenditures per T/TT Faculty by College								
64	AAH			\$ 3,115	\$ 2,264	\$ 2,345	\$ 2,914	
65	CAFLS			\$ 93,788	\$ 77,856	\$ 65,022	\$ 47,218	
66	CBBS			\$ 13,916	\$ 11,168	\$ 11,628	\$ 7,333	
67	COES			\$ 146,096	\$ 134,006	\$ 132,733	\$ 83,381	
68	HEHD			\$ 51,253	\$ 48,060	\$ 56,518	\$ 31,536	
69	SOE			\$ -	\$ -	\$ -	\$ 28,303	
RESEARCH OUTPUTS/OUTCOMES								
70	Doctorates Awarded (Aug, Dec, May)	192	220	187	217	237	162	
71	STEM Doctorates Awarded (Aug, Dec, May)	130	145	118	153	165	102	
72	Disclosures	124	114	102	129	70	23	
73	Patents	20	14	16	15	15	7	
74	Licenses/Options	12	11	9	7	7	-	
75	Licensing Revenue	\$ 937,273	\$ 853,504	\$ 1,134,289	\$ 762,811	360,131	68,889	
76	Start-up Companies (based on licenses/options above)	2	6	1	4	4	-	
THE BOTTOM LINE				2013	2014	2015	2016	
* Awards Total (pg. 7, Annual Report)				\$ 102,023,163	\$ 108,295,780	\$ 121,846,378		
** Research Expenditures				\$ 75,388,679	\$ 69,907,663	\$ 73,307,908		
Other Sponsored Programs Expenditures				\$ 26,827,035	\$ 28,371,149	\$ 32,569,780		
Less CURF Indirect Expenditures				\$ 1,303,354	\$ 743,951	\$ 684,695		
Sponsored Research and Programs Expenditures (pg. 1, Annual Report)				\$ 100,912,360	\$ 97,534,861	\$ 105,192,993		
* See section c. above								
** See section f. above								

**Top 10 Awards
FY2016
Jan - Mar 8th**

Meeting Date	PI Full Name	PI Department	Sponsor	Project Title	Award Date	Project	
						Total Award	Subcontracted Collaborators
Apr-16	Frager, Robert D	Youth Learning Institute	SC Dept of Social Services	ICSS Employment and Training	1/15/2016	\$ 2,337,693	None
Apr-16	Pilla, Srikanth	Automotive Engineering	Department of Energy	Functionally Designed Ultra-Lightweight Carbon Fiber Reinforced Thermoplastic Composites Door Assembly	2/2/2016	\$ 2,249,994	Univ. of Delaware
Apr-16	Cole, Christine W	Material Science and Engineering	Wal-Mart Foundation	Energy and Effluent Reduction Through Innovative Dyeing of Polyester Fabrics	1/19/2016	\$ 964,332	Hills Engineering, Burlington Worldwide, Mount Vernon
Apr-16	Ding, Feng	Physics & Astronomy	National Science Foundation	CAREER: Multiscale Study of the Structure and Dynamics of Nanoparticle-Protein Coronae	2/16/2016	\$ 506,569	None
Apr-16	Getman, Rachel B	Chemical Engineering	National Science Foundation	CAREER: Hierarchical Modeling for Rational Catalyst Design in Aqueous Conditions	2/16/2016	\$ 503,922	None
Apr-16	Ross, Brandon E	Civil Engineering	National Science Foundation	CAREER: Quantifying the Adaptability of Building Structures, Envelopes, and Foundations	1/20/2016	\$ 500,000	None
Apr-16	Perahia, Dvora	Chemistry	National Science Foundation	Computational-Experimental Insight across Time and Length Scales of Dynamics in Ionic Polymers	3/1/2016	\$ 426,000	None
Apr-16	Schnabel, Guido	Ag & Environmental Sciences	USDA	Adaptation of Intelligent Spray Application Technologies in Peach Orchards	1/2/2016	\$ 209,718	None
Apr-16	Jiang, Xuiping	Food, Nutrition & Package Sci	Center for Produce Safety	Validating a physically heat-treated process for poultry litter in industry settings using the avirulent Salmonella surrogates or indicator microorganisms.	2/5/2016	\$ 193,917	None
Apr-16	Mueller, John D	Edisto Research & Educ Center	California Strawberry Growers Assoc.	Identification of Inoculum Sources and the Development of Methods to Reduce Dispersal of Xanthomas fragariae to minimize its impact on international trade of strawberry nursery stock.	1/28/2016	\$ 181,860	None

**Top 10 Awards
Project Abstracts
FY2016
Jan - Mar 8th**

PI Full Name	Project Title	Abstract
Fragar, Robert D	ICSS Employment and Training	In consultation with DSS, the University will provide the services, training, and evaluation necessary to effect the implementation of policies, procedures, and system changes to: 1) Increase the contributions of parents to the financial support of their children by helping them remove barriers to employment or improved employment; 2) Improve and further develop working relationships between staff in CSS and others involved in promoting employment of non-custodial parents including DSS' Economic Services staff and other State, local, and community based partners; 3) Assisting in the development and implement a formal training program for all CSS change necessary to child support services. 4) Analyze and evaluate program components to determine the effectiveness of various program models and strategies.
Pilla, Srikanth	Functionally Designed Ultra-Lightweight Carbon Fiber Reinforced Thermoplastic Composites Door Assembly	The objectives of the project are: to employ a systems approach to radically redesign, manufacture and validate a fully functional ultra-lightweight carbon fiber reinforced thermoplastics composites door assembly for a 2013 mid-size SUV (with a production volume of 50,000 units/yr) that meets or exceeds the fit, function, safety, stiffness, crash performance and NVH requirements of the baseline door while achieving a weight reduction > 42.5% at the cost of < \$5/lb of weight saved.
Cole, Christine W	Energy and Effluent Reduction Through Innovative Dyeing of Polyester Fabrics	Polyester now represents the majority of the fiber consumption in the world. However, polyester is one of the more difficult fibers to dye. Due to the chemical and physical structure of the fibers, small dye molecules and high temperatures/pressures and/or hazardous chemicals are required to satisfactorily color polyester fabrics. These manufacturing conditions mean that the dyeing is energy intensive as well as produces significant amounts of colored effluent. It is estimated that 200,000 tons of dyestuff are lost each year in the effluent from commercial dyeing operations; perhaps 20% of this dyestuff effluent can be attributed to dyeing polyester. Investigators propose to: (1) Reduce the amount of dyestuff required to color polyester, (2) Reduce the energy required to color polyester, and (3) Reduce the amount of colored effluent from polyester dyeing processes. Our strategy builds on commercially available components but assembles them in innovative ways. Our processes will readily fit within current US textile manufacturing processes.
Ding, Feng	CAREER: Multiscale Study of the Structure and Dynamics of Nanoparticle-Protein Corona	With the rapid development of nanotechnology, engineered nanoparticles (NPs) may be released to the environmental and biological systems either purposely or accidentally. With many proteins enriched in the environmental and biological media as the functional building blocks, they can be absorbed onto the NP surface, forming the so-called NP-protein corona. It is the protein corona rather than the original NPs that are "seen" by cells and tissues and subsequently determine the biological and/or pathological functions of these released NPs. The objective of this proposal is to develop and apply state-of-the-art computer simulation methods to understand the fundamental aspects of the corona formation and to determine the physical and chemical properties of NPs that dictate the protein absorption. The obtained knowledge will help guide the design of novel NPs that promotes the intended biological functions and prevents the unintended pathological responses, enabling the "safe-by-design" to the broad scientific and engineering community for modeling and predicting corona formation and rapid risk assessment of NP exposures.
Getman, Rachel B	CAREER: Hierarchical Modeling for Rational Catalyst Design in Aqueous Conditions	The proposed research will refine molecular simulation models for catalytic reactions in the presence of liquid water and apply the calculations to an electrochemical process for ammonia synthesis that could potentially replace the long-standing, but energy intensive, Haber-Bosch gas phase process. The research is integrated with an educational plan that introduces molecular level simulation concepts to students across levels ranging from high school to graduate research.
Ross, Brandon E	CAREER: Quantifying the Adaptability of Building Structures, Envelopes, and Foundations	This research will study domestic and international building projects to identify the physical aspects of buildings that make them likely to be demolished or adapted. Findings from the research will be used to create tools that architects and engineers can apply to design adaptable urban buildings. Such buildings will promote economic, social, and environmental sustainability of cities as they address unprecedented and accelerating trends in urbanization, climate change, and technological advancement. University students and industry practitioners will participate in all phases of the research and will be instructed on the theory and practice of adaptable building design.

**Top 10 Awards
Project Abstracts
FY2016
Jan - Mar 8th**

PI Full Name	Project Title	Abstract
Perahia, Dvora	Computational-Experimental Insight across Time and Length Scales of Dynamics in Ionic Polymers	The design of new materials is one critical aspect of engineering new platforms that will augment the energy security of the nation, impact health, and enhance economic competitiveness. Driving innovation in technologies such as clean energy generation and storage and numerous biomedical technologies requires new materials that can serve in different capacities simultaneously. One promising class of materials consists of very large molecules (polymers) able to transport ions and electrons while retaining their mechanical integrity, often under extreme conditions of high temperatures, solvents, and external stresses that may affect their performance. The ability of these materials to play multiple roles is attained by tailoring molecular segments with different chemical functionalities into one large molecule, including blocks for transporting ions and electrons and blocks to provide mechanical stability. Controlling the way these segments organize and perform electrically as they are integrated into devices is key to the design of new effective platforms. In this project, using large-scale computational studies coupled with state-of-the-art neutron measurements, the effects of the structure of these polymers will be correlated with their dynamics as they are exposed to high temperatures and solvents. The projected results will provide the understanding that will enhance the ability to design well-controlled multi-functional polymers, tailored with desired properties for specific applications. The project is closely integrated with interdisciplinary education and training of graduate and undergraduate students and high-school outreach.
Schnabel, Guido	Adaptation of Intelligent Spray Application Technologies in Peach Orchards	The PI will examine the intelligent sprayer for disease and insect management in peach orchards. The study will be conducted over three years at a commercial orchard near Ridge springs. PI will examine major diseases and pest incidence, spray distribution and calculate spray solution savings compared to conventional sprayers.
Jiang, Xuiping	Validating a physically heat-treated process for poultry litter in industry settings using the avirulent Salmonella surrogates or indicator microorganisms.	Poultry litter is an excellent source of nutrients for the growth of agricultural crops. In order to reduce the microbiological risks associated with the use of raw poultry litter as a soil amendment or organic fertilizer, physical heat treatments are recommended to reduce or eliminate potential pathogenic microorganisms. Our recent studies have demonstrated that the thermal resistance of Salmonella in chicken litter was increased significantly when cells were adapted to desiccation or aged chicken litter with low moisture content was heat-treated. By increasing moisture level in chicken litter or applying a two-step heat treatment (wet heat then dry heat), Salmonella can be inactivated much rapidly. Additionally, our preliminary results indicate a good correlation in thermal inactivation rates between desiccation-adapted Salmonella and indigenous enterococci in chicken litter, suggesting enterococci as a potential indicator for heat process validation. In this proposed study, we'll collaborate with two large poultry litter processors to validate their physically heat-treated process in the industry settings by using Salmonella surrogate and indicator microorganisms identified in this study. Results from this research will provide some valid guidelines and tools for the fertilizer industry to produce physically heat-treated poultry litter as Salmonella-free, thereby ensuring safe production of fresh produce.
Mueller, John D	Identification of Inoculum Sources and the Development of Methods to Reduce Dispersal of Xanthomas fragariae to minimize its impact on international trade of strawberry nursery stock.	Clemson agrees to do the following projects associated with objectives (iv) and (v) of the TASC proposal "Identification of inoculum sources and the development of methods to reduce dispersal of Xanthomas fragariae to minimize its impact on international trade of strawberry nursery stock."