

**Clemson University  
Clemson, South Carolina**

**Reports Required by *Government Auditing Standards*  
and the *Uniform Guidance***

***For the year ended June 30, 2017***

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**Clemson University, South Carolina**

*Schedule of Expenditures of Federal Awards*

*For the year ending June 30, 2017*

Federal Grantor/Pass-through Grantor/Program Title	Federal CFDA Number	Pass-Through Entity Identifying Number	Passed Through to Subrecipients	Total Federal Expenditures
<b>RESEARCH AND DEVELOPMENT CLUSTER</b>				
<b>Department of Agriculture</b>				
Acquisition of Goods and Services	10.RD	58-6080-5-013	\$ -	\$ 884
Acquisition of Goods and Services	10.RD	58-6080-7-003	-	20,532
Acquisition of Goods and Services	10.RD	58-6080-7-004	-	14,426
Acquisition of Goods and Services	10.RD	58-6082-5-015	-	378
Acquisition of Goods and Services	10.RD	58-6082-6-007	-	80,253
Acquisition of Goods and Services	10.RD	58-6082-6-013	-	78,037
Acquisition of Goods and Services	10.RD	58-6082-7-012	-	9,334
Adaptation of Intelligent Spray Application Technologies in Peach Orchards	10.RD	59-5082-6-002	-	18,917
An Administrative Study to Develop Transfer Zones for Native Plant Materials: Intraspecific Functional Trait Variation - Common Garden Support	10.RD	16-CS-11330123-061	-	6,383
Animal Health	10.RD	Unknown	-	27,370
Areawide Pest Management of the Invasive Sugarcane Aphid in Grain Sorghum- Clemson University, South Carolina	10.RD	58-6048-6-015	-	7,331
Assessment of the Potential for WNS in Bats of Congaree National Park	10.RD	15-JV-11330134-108	-	54,861
Assisting Farmers in SC to Adopt Modern Soil Moisture Sensing Technologies to Improve Irrigation Scheduling and to Enhance Environmental Quality and Farm Profits While Reducing Irrigation Water and Energy Consumption	10.RD	69-4639-14-0010	-	15,177
Bat Monitoring on the Andrew Pickens Ranger District	10.RD	15-PA-11081209-020	-	14,488
Building Entrepreneurial Farm Management and Land Stewardship Capacity for South Carolina New and Beginning Farmers	10.RD	2016-70017-25351	-	96,847
Capacity Building for USDA- Rural Development Programs in South Carolina	10.RD	RD-RB-16-26	-	40,971
Clean Water3 - Reduce Remediate Recycle: Informed Decision Making to Facilitate Use of Alternative Water Resources	10.RD	2014-51181-22372	1,475,011	1,837,171
Clemson University Sustainable Community Project (CYFAR Sustainability)	10.RD	2011-41520-30408	-	(751)
Contributions of Urban Parks and Green Space to Human Health and Well Being: An Ecosystem Services Approach	10.RD	14-JV-11330144-060	-	8,132
Crop Protection and Pest Management Extension Implementation Program for South Carolina to Advance Stakeholder Adoption in Key Commodities	10.RD	2014-70006-22568	-	154,134
Culicoides Sonorensis Transcriptome Project	10.RD	58-5430-2-313	-	75,936
Data Needed for Foreign Regulatory Packages for the PPV Resistant Transgenic Prunus Domestica CV. 'HoneySweet'	10.RD	58-1931-4-012	-	49,647
Demonstration of Deep-Rooted Cover Crop Tillage and Controlled Traffic on Eliminating Hardpan Layer in Coastal Plain Soils to Enhance Soil Health and Farm Profits	10.RD	69-4639-13-0019	-	32,216
Demonstration of Innovative Nutrient Management Strategies Combined with Soil Amendments to Enhance Fertilizer Use Efficiency Farm Profits and Environmental Quality	10.RD	69-3A75-14-268	-	67,094
Developing a Life Cycle Assessment Model for Evaluating Policy Implications of Biofuels	10.RD	2012-67009-25266	7,066	90,140
Developing a Sensor-Based Variable-Rate Nutrient Management Technique for Center Pivot Irrigation Systems	10.RD	2017-67011-26071	-	24,905
Edge of Field Water Quality Monitoring	10.RD	68-4639-15-527	-	29,949
Enhancing FANH Education Through Sensor-Linked Mobile Applications to Improve Technical Literacy	10.RD	2017-70003-26390	-	32,694
Enhancing the Nutrient Use Efficiency in Crop Plants by Tailoring the Nitrogen and Phosphorous Release Rates from Rendered Animal Materials	10.RD	2016-67020-25264	-	78,500
Evaluating the Net Climate Benefits of Switchgrass Versus Pine Plantations in the Southeast: A Seed Grant to Support Data Collection and Model Development	10.RD	2017-68002-26612	-	27,706
Evaluation of Paper Bags for Pest and Disease Management in Organic Peach Production	10.RD	2016-51300-25726	48,584	120,868
Expanding the Use of Wood Building Products in SC	10.RD	15-CA-11083150-053	1,585	65,382
Forest Health Conditions of St. Thomas and St. Croix USVI	10.RD	15-DG-11120107-021	-	20,171
Genetic Structure in Native Plants: Foundational Information for Developing Plant Materials Transfer Zones	10.RD	16-CS-11330123-060	-	3,912
Genomic and Breeding Foundations for Sorghum Bioenergy Hybrids	10.RD	2011-67009-23490	115,672	188,107
Genomic Profiling and Development of a Comprehensive Catalogue of Plum Germplasm Using Genotyping-By-Sequencing (GBS)	10.RD	59-8080-6-001	-	14,111
Genomics Transcriptomics and Microbiome Analysis of Dipteran Pests Affecting Livestock and Humans	10.RD	58-3020-6-015	-	3,424
Genotypic Specificity in Plant-Herbivore Interactions and its Application to Management of an Invasive Weed	10.RD	2015-67014-22956	-	136,904
Hatch	10.RD	Unknown	-	4,566,744

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*For the year ending June 30, 2017*

Federal Grantor/Pass-through Grantor/Program Title	Federal CFDA Number	Pass-Through Entity Identifying Number	Passed Through to Subrecipients	Total Federal Expenditures
<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Agriculture, continued</b>				
Hayman Fire Resample	10.RD	14-JV-11221634-108	-	21,608
Horn Fly Antennal and Midgut Transcriptome Analysis	10.RD	58-6205-4-010	-	5,039
Identity and Ecology of Wiregrass-Infecting Smut and a Preliminary Investigation of the Relationship Between Time Since Burning and Infection Rates	10.RD	14-JV-11330123-123	-	13,140
Impact of Fescue Toxicosis on Fetal Development and Postnatal Growth	10.RD	2015-67015-23218	-	153,918
Impact of Prescribed Fire on Polycyclic Aromatic Hydrocarbon Production and Contaminant Photo-transformation Reductions in Coastal Plain	10.RD	2014-67019-21615	-	62,866
Improving Soil Health in Peach Orchards: A Demonstration	10.RD	68-4639-14-0022	-	13,528
Intraspecific Functional Trait Variation Among Populations of Common Species of the Longleaf Pine Ecosystem	10.RD	16-JV-11330123-022	-	50,364
Landscape-Scale Thresholds of Early Successional Habitat; Reconciling Biodiversity Public Perception and Timber Yield in Managed Forests	10.RD	12-CA-11330134-092	-	46,986
McIntire Stennis	10.RD	Unknown	-	703,873
Modeling Fire-Induced Tree Mortality for Eastern Hardwood Forests	10.RD	16-JV-11242311-079	-	11,163
Monitoring Success of Farm Bill Programs in Conserving Avian Wildlife	10.RD	69-4639-16-261	-	33,178
Optimizing No-Till Cover Crop Management for Weed Control in Vegetable Production: Applied Res. & Ext. Training to Facilitate Grower Adoption	10.RD	2015-70006-24163	-	73,903
Outreach Activities for the Consortium of Appalachian Fire Managers and Scientists	10.RD	16-JV-11330136-001	-	75,681
Pine Seedling and Thinning Demonstration Site Development in the Piedmont of South Carolina	10.RD	69-4639-17-145	-	17,633
Population Genomics of Streptococcus Agalactiae from Infected Bovine and Fish Sources	10.RD	2013-67012-23286	-	23,075
Repeated Prescribed Fires and Mechanical Fuel Treatments in the Southern Appalachian Mountains: Vegetation and Fuels after a Fourth Burn and a Second Mechanical Treatment	10.RD	15-JV-11330136-044	-	27,952
Reptile Amphibian and Invertebrate Response to Repeated Prescribed Fires and Mechanical Fuel Reduction Treatments in an Upland Hardwood Forest	10.RD	14-JV-11330136-018	-	1,827
Selection Molecular and Genetic Analysis of HLB Tolerant/Resistant Variant Citrus Plants	10.RD	2017-70016-26051	-	14,278
Southeastern Budwood Program	10.RD	15-8130-0423-CA	-	17,087
Southeastern Budwood Program	10.RD	16-8130-0423-CA	-	93,506
Stress Induced Modification of the Quantity and Composition of Phytochemicals in Fruits: Optimizing the Nitrogen Supply for Enhancing the Nutritive Quality of Strawberries	10.RD	2016-67014-24578	-	56,519
Toward a Near Real-Time Agricultural Drought Monitoring and Forecasting	10.RD	2015-68007-23210	-	87,344
Tracking and Managing Diseases of Floriculture Crops Caused by Oomycetes and Fungi	10.RD	58-8062-5-037	-	39,424
Transforming Nanocellulose Into an Advanced Biorenewable Reinforcement with Hyperbranched Polymers	10.RD	2016-67021-25016	3,355	70,143
Understanding the Vulnerability of Tri-colored Bats to White-nose Syndrome in South Carolina: Torpor Patterns and Hibernacula Conditions	10.RD	16-JV-11330134-010	-	23,350
Unintentional Creation of a Heat Resistant Bacterial Biota and its Impact on Food Safety	10.RD	2015-67031-23795	-	16,727
Utilization of Cross Laminated Timber	10.RD	16-DG-11083150-054	-	54,037
Water Use in the Propagation of Vegetative Animals	10.RD	58-3607-3-991	-	33,036
Pass-through programs from:				
Cal Poly Corporation				
Improving Strawberry Gray Mold Management through Identification of Ineffective Sprays	10.RD	2016-18-46134	-	25,754
California Strawberry Plant Growers Association				
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	10.RD	TASC-2015-31-Clem	-	86,215
CHK Group Incorporated				
Development and Use of Biosilica as a High Reactivity Pozzolan in Ultra-High Performance Concrete (UHPC) Mixtures	10.RD	CU-01	-	15,020
Cooper Tire and Rubber Company				
Securing the Future of Natural Rubber-An American Tire and Bioenergy Platform from Guayle	10.RD	2016000344	-	149,548

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Agriculture, continued</b>				
Pass-through programs from, continued:				
Cornell University				
Developing an Eastern Broccoli Industry Through Cultivar Development Economically and Environmentally Sustainable Production and Delivery	10.RD	79598-10781	-	29,568
Dillon County				
Demonstrating Tillage and Cover Crop Management Strategies on a Corn-Wheat-Soybean Rotation	10.RD	USDA prime # 69-4639-15- 504	-	979
Kansas State University				
2017 Air Force/4-H Partnership Youth Camps	10.RD	S17158	-	728
Navy/4-H Military Partnership and Outreach and Support	10.RD	S17178	-	11,004
Louisiana State University				
Biology Ecology and Impact of Melanaphis Sacchari In Sugarcane and Sorghum Production Systems	10.RD	105611	-	42,739
Michigan State University				
RosBRED: Combining Disease Resistance with Horticultural Quality in New Rosaceous Cultivars	10.RD	RC104285B	-	217,432
North Carolina Central University				
New Strategy and Method for Isolating and Concentrating Foodborne Pathogens	10.RD	PO# USDA-NIFA-AFRI- 003958	-	63,583
North Carolina State University				
An Investigation into Antixenosis Antibiosis and Tolerance Mechanisms to Kudzu Bug in Soybean	10.RD	2015-2467-01	-	34,259
Building Capacity to Control Viral Foodborne Disease: A Translational Multidisciplinary Approach	10.RD	2011-0494-01	-	366,170
Development of Grafting Technology to Improve Sustainability and Competitiveness of the U. S. Fruiting Vegetable Industry	10.RD	2011-1609-08	-	27,094
Dispersal and Life History of Megacopta Cribraria from Kudzu and Implications for Management in Soybean	10.RD	2013-2839-02	-	1,062
Fellowship for Building Capacity to Control Viral Foodborne Disease: A Translational Multidisciplinary Approach	10.RD	2011-0494-01	-	17,745
Growing New Roots: Grafting to Enhance Resiliency in U.S. Vegetable Industries	10.RD	2016-1498-01	-	110,933
Impact of Transgenic Bt Crops on Helicoverpa Zea Ecology and Subsequent Resistance Risk	10.RD	2014-2219-01	-	41,954
Southern IPM Center Partnership	10.RD	2015-0085-07	-	6,922
Rutgers The State University of New Jersey				
Protecting Pollinators with Economically Feasible and Environmentally Sound Ornamental Horticulture	10.RD	6065-PP2016-Chong PO#479850	-	25,025
South Carolina Coastal Conservation League				
Facilitating the Expansion and Sustainability of Local Food Systems in South Carolina through GrowFood Carolina the State's First Local Food Hub	10.RD	USDA Prime # 14-LFPPX-SC- 0155	-	5,000
South Carolina Department of Agriculture				
Development of Peach Varieties with Superior Qualities for Enhanced Production Increased Consumption and a Competitive Advantage for the South Carolina Peach in the Global Market	10.RD	None	-	2,222
Enabling Marker Assisted Breeding for Fruit Size in Peach	10.RD	None	-	9,809
Improving Control of Southern Blight and Minimizing Losses in Tomato Crops with Use of Effective Fungicides	10.RD	None	-	20,363
Investigation into the Occurrence Prevalence and Cause of Peach Fruit Bronzing	10.RD	None	-	13,529
Management of a New Strain of Alternaria alernata Resistant to Key Fungicides	10.RD	None	-	12,500
Nutritional and Biological Yield Improvement of SC Grown Kale (Brassica oleracea var. acephala L.) for Improved Human Health	10.RD	None	-	9,432
Restoring the Sweet Potato Industry in South Carolina through Research and Extension	10.RD	None	-	16,157
Selecting Organic Kale Varieties with Increased Production and Nutritional Quality	10.RD	None	-	11,394
South Carolina Watermelon Disease Survey	10.RD	None	-	7,503
South Carolina Forestry Commission				
Flooding and Forest Health: An Assessment on the Impact of the 2015 Flooding in South Carolina	10.RD	None	-	12,280
Impact of Laurel Wilt Disease on Redbay (Persea borbonia) Ecosystems	10.RD	None	-	21,825

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<b>Department of Agriculture, continued</b>				
Pass-through programs from, continued:				
The Center for Produce Safety				
Validating a Physically Heat-treated Process for Poultry Litter in Industry Settings Using the Avirulent Salmonella Surrogates or Indicator Microorganisms	10.RD	2016CPS05	-	84,958
University of Florida				
Climate Variability to Climate Change: Extension Challenges and Opportunities in the Southeast Area	10.RD	UFDSP00010720 (Previously UF11109)	-	161,143
Evaluate the Efficacy of Selected Insecticides Against Western Flower Thrips in Outdoor Ornamental Plant Production	10.RD	1600472074	-	8,042
Strategic Management of Multiple Diseases in Strawberry Nurseries and Production Fields in the Eastern United States	10.RD	UFDSP00010493	-	111,714
Efficacy of Selected Insecticides for Managing Tea Scale in Containerized Ornamental Plants	10.RD	1600411969	-	736
University of Georgia				
A System Approach to Improve Disease Management and Production of Watermelon In the Southeastern United States	10.RD	RF332-692/5054176	-	35,263
Cover Crop Influence on Stored Soil Water Availability to Subsequent Crops	10.RD	RD309-129/5001062	-	12,066
Forest Health Initiative: Biological Research Component Phase II Testing and Transgenics	10.RD	RR272-422/4944456	-	3,618
Fruit Bagging as a Strategy to Reduce Reliance on Pesticides for the Production of Peaches in the Southeast	10.RD	RD302-129/5001063	-	9,029
Getting to the Bottom of Bronzing A Peach Skin Disorder Causing Severe Losses for Organic and Conventional Peach Growers	10.RD	RD309-129/5001067	-	13,794
Increasing Sustainability of Peanut Cotton and Soybean Production Systems Through Innovative Interseeding Technology to Enhance Farm Profit and Reduce Pest Occurrence	10.RD	RD309-129/5001061	-	3,093
Sustainable Agriculture Research and Education (SARE) Professional Wholesale Success: Building the Capacity of Farmers to Meet Demand for Locally and Sustainably Grown Produce	10.RD	RE675-171/4942706	-	1,899
	10.RD	RD309-137/5001411	-	1,005
University of Hawaii				
New Engineered Approaches for Recovering Disperse Populations of Low-Tolerance Pathogens from Food	10.RD	2014-67005-21702	-	2,840
University of Minnesota				
Innovating to Expand Farm Financial Management and Benchmarking	10.RD	H005728802	-	17,069
University of South Carolina				
Evaluation of Farm to Institution Programs (Farm to School)	10.RD	16-3062/PO#20000020344	-	2,132
University of Tennessee				
Bioleaching of Biomass to Improve Thermochemical Conversion Efficiency with Reduced Emission	10.RD	8500047637	43,695	127,710
Omega-3 and Fatty Acid Production from Sweet Sorghum	10.RD	8500054640	-	18,535
University of Texas San Antonio				
Cloud-based Decision Support System Integrating Biomass Quality Uncertainty and Risk to Optimize the Production of Second-generation Biofuels	10.RD	1000001538	-	21,109
VRM Labs Incorporated				
Novel Natural Antioxidants Extracted from Animal Red Blood Cells	10.RD	VRM-001	-	4,600
Washington State University				
Genome Database for Rosaceae: Empowering Specialty Crop Research Through Big-Data Driven Discovery and Application In Breeding	10.RD	123519-G003399	-	44,211
<b>Total Department of Agriculture</b>			<b>1,694,968</b>	<b>12,054,784</b>
<b>Department of Commerce</b>				
Accelerate SC: Workforce Innovation Launch	11.RD	04-79-06838	-	152,129
FY 2017 Summer Undergraduate Research Fellowship PML-PL	11.RD	70NANB17H133	-	9,036
FY 2016 Summer Undergraduate Research Fellowship PML-PL SURF	11.RD	70NANB16H137 Hanson	-	250
Relativistic and QED Effects in Highly Charged Ions	11.RD	70NANB16H204	-	226,385
Spectroscopy of Highly Charged Ions	11.RD	70NANB15H213	-	582
Pass-through programs from:				
GenWest				
Microplastic Marine Debris Research Support	11.RD	GSI-CU-1505	-	40,076
South Carolina Sea Grant Consortium				
A Marine Larval Culture Facility for the Okeanos Research Laboratory	11.RD	M/PM-2E	-	2,764
Adaptability Toolkit for South Carolina's Coastal Water Infrastructure - Year 1	11.RD	N366 (R/CH-5)	4,591	42,102

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Commerce, continued</b>				
Pass-through programs from, continued:				
South Carolina Sea Grant Consortium, continued				
Adaptability Toolkit for South Carolina's Coastal Water Infrastructure - Year 2	11.RD	N466 (R/CH-5)	-	30,216
Carbonic Anhydrase Mediation of Carbonate Supply in Oyster Larvae Impacted by Ocean Acidification	11.RD	M/PM-2D	-	3,833
Evaluating Wetland Function in Coastal South Carolina to Support Low Impact Development Decision-Making	11.RD	N253	-	13,501
Microplastic Contamination in Coastal South Carolina: Sources Trophic Transfer and Abundance in Biota - Year 1	11.RD	N368 (R/ER-46)	33,249	61,072
Microplastic Contamination in Coastal South Carolina: Sources Trophic Transfer and Abundance in Biota - Year 2	11.RD	N468 (R/ER-46)	801	13,149
Particle Contamination: Direct Effects on Salt Marsh-Tidal Creek Organisms and Indirect Effects on the Bioavailability and Toxicity of Polynuclear Aromatic Hydrocarbons (PAH)	11.RD	N255	8,389	8,389
Performance Based Design of Low Impact Development Technologies in Response to Climate Change Induced Changes in Rainfall Patterns - Year 1	11.RD	N367 (R/CH-6)	-	34,084
Performance Based Design of Low Impact Development Technologies in Response to Climate Induced Changes in Rainfall Patterns - Year 2	11.RD	N467 (R/CH-6)	-	6,491
Wind and Rain Resistant Design for Coastal Cross Laminated Timber Building	11.RD	N257	-	11,878
<b>Total Department of Commerce</b>			<b>47,030</b>	<b>655,937</b>
<b>Department of Defense</b>				
(DURIP-16) Grid Computing Laboratory for Integrative Behavioral and Optimization Research	12.RD	FA9550-16-1-0326	-	84,595
(YIP) Engineering Robust Enzyme Activity Through Fundamental Studies of Extremophile Enzymes	12.RD	FA9550-15-1-0163	-	72,924
A Multi-Function/Multi-Fuel ThermoAcoustic Generator/Heat Pump (TAG/HP) for Marine Expeditionary Forces	12.RD	N00014-14-1-0227	-	353,157
A Practical Approach for Modeling Matrix Diffusion Effects in REMChlor	12.RD	W912HQ-14-C-0009	73,361	174,145
Abiotic Transformation of Chloroethenes in Low-Permeability Formations	12.RD	W912HQ-16-C-0022	52,993	240,117
Acquisition of a Hot Oxygen Doppler Imager (HODI) Interferometer System for Measuring F-Region Ion Transport Ion Temperature and Hot Oxygen Composition with the Auroral Thermosphere	12.RD	FA9550-15-1-0361	-	94,883
Addressing Circuitous Currents MVDC Power Systems Protection	12.RD	N00014-16-1-3113	-	56,077
Assessing the Impact of Asymmetric Information in Interdiction and Bilevel Games	12.RD	N00014-17-1-2421	-	43,069
Bi-Component Fiber Approach to Making Superomphobic Textile Surfaces	12.RD	W911QY-14-P-0413	-	14,536
Carbon Fibers Derived from Sustainable Precursors	12.RD	W911NF-10-2-0024	-	2,509
Combined Biological and Chemical Mechanisms for Degradation of Insensitive Munitions in the Presence of Alternate Explosives	12.RD	W912HQ-12-C-0058	-	4,274
Develop Integrated Management Practices for the Control of Chinese Tallow (Triadica sebifera) in Coastal Forests for Natural Resources Program MCRD Parris Island South Carolina	12.RD	W9126G-14-2-0042	-	7,377
Discriminatory Transcriptional Response of Environmental Microorganisms and Microbial Communities to Low-Dose Ionizing Radiation	12.RD	HDTRA1-17-1-0002	-	59,362
DURIP 14RT0579: A GPU-Based High Performance Computing Cluster for Predictive Modeling of Complex Systems and Situational Intelligence	12.RD	FA2386-14-1-3028	-	257,544
Dynamic and Adaptive Sensor Operations Under Uncertainty	12.RD	N00014-16-1-2110	-	60,248
Economic Impact Analysis of the Economy Below Thurmond Dam in Response to Water Quality and Water Quantity Constraints	12.RD	W912HZ-16-2-0035	-	32,520
Efficient Delivery of Information in Tactical Packet Radio Networks	12.RD	W911NF-15-1-0545	-	145,607
Enhancing mHealth Technology in the PCMH to Activate Chronic Patients	12.RD	W81XWH-15-C-0070	-	463,704
Exploration of Carbon-Based Hybrid Nanoarchitectures as a Unique Platform for Managing Excited State Energies and Processes	12.RD	FA9550-16-1-0166	-	111,222
Fluorescence Activated Cell Sorting for Intercollegiate Research and Education	12.RD	FA9550-16-1-0270	-	173,393
GPU Applications for TrueView Scene Simulation	12.RD	N66001-16-P-6865	-	71,868
High Power Single Frequency Broad-area Diode Laser Emitters/Arrays and Their Applications in Microresonator Based Frequency Combs Optoelectronics Program	12.RD	W911NF-14-1-0640	-	193,901
Identifying and Evaluating Impacts to Wetlands from the Savannah River Estuary	12.RD	W912HZ-14-2-0002	-	260,912
Liquid Sampling-Atmospheric Pressure Glow Discharge (LS-APGD)				
Microplasmas for Elemental Isotopic and Molecular Determinations	12.RD	HDTRA1-14-1-0010	-	192,299

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Defense, continued</b>				
Long-term Stable Conservative Multiscale Methods for Vortex Flows	12.RD	W911NF-14-1-0480	52,195	54,923
Mini-Conference on Discrete Mathematics and Algorithms	12.RD	H98230-16-1-0052	-	2,004
MVDC Power System Protection: Fundamental Research	12.RD	N00014-15-1-2272	-	1,268
New Fouling Deterrent Strategies to Defeat Barnacle Biofouling	12.RD	N00014-14-1-0488	-	22,886
New RLT Theory for Solving Continuous Nonlinear and Mixed-Discrete Optimization Problems	12.RD	N00014-16-1-2168	-	100,902
New Techniques for Network-Coded Multicast Distribution in Wireless Communications Networks	12.RD	N00014-17-1-2418	-	28,475
Optical Fibers with Elevated Threshold for Higher-Order Mode Instability	12.RD	FA9451-15-D-0009/0001	11,406	11,406
Optical Fibers with Elevated Threshold for Higher-Order Mode Instability	12.RD	FA9451-15-D-0009/0002	16,005	75,769
Optimization Under Uncertainty and Conflict: Algorithms for Heterogeneous Quadratic Programs	12.RD	N00014-16-1-2725	-	119,096
Performance as a Partner in the Military Uniform System Technology (MUST) Program - Option 1	12.RD	SP4701-14-D-7004/0003	-	1,119
Performance as a Partner in the Military Uniform System Technology (MUST) Program - Option 2	12.RD	SP4701-14-D-7004/0004	-	1,215
Predictive Structure-Function Relationships for Enzymes Immobilized on Complex Surfaces	12.RD	HDTRA1-16-1-0023	-	118,866
Preventing Infection by Surface Modification of Orthopaedic Fracture Fixation Implants for Improved Limb Salvage Outcomes	12.RD	W81XWH-14-1-0438	-	183,917
Privacy Support for TLA	12.RD	W911QY-16-C-0105	-	190,984
Rapid and Accurate Uncertainty Propagation for Nonlinear Dynamic Systems by Exploiting Model Redundancy	12.RD	FA9550-16-1-0158	-	91,706
Reactive Membranes for Rapid Isotopic Analyses of Waterborne Special Nuclear Material	12.RD	HDTRA1-16-1-0016	-	237,474
Reactive-Moiety Functionalization of Polyurea for Increased Shock-Mitigation Performance	12.RD	N00014-14-1-0286	-	166,297
Spatially and Temporally Agile Optical Communication Links for Maritime Applications	12.RD	N00014-16-1-3090	-	346,958
Subsurface Thermal Energy Storage (STES) for Improved Heating and Air-Conditioning Efficiency	12.RD	W912HQ-10-C-0027	10,949	10,949
Trust-based Human-Robot Collaboration (HRC) for High-Level Distributed Multi-Robot Motion Planning with Temporal Logic Constraints	12.RD	FA9550-17-1-0050	-	25,303
Trust-based Optimal Guidance and Navigation for Multiple Manned-Unmanned Vehicles	12.RD	W911NF-16-1-0331	-	50,000
Ultra-Trace Level Quantification of Alpha- and Beta- Emitting Radionuclides with Extractive Scintillating Resin	12.RD	HDTRA1-12-1-0012	-	221,472
Pass-through programs from:				
Advanced Robotics for Manufacturing Institute Robotics Workforce Development	12.RD	None	-	69,761
Arizona State University Development of Substrate-loaded Microbial Fuel Cells for Powering Remote Sensors	12.RD	17-169	-	6,622
Clemson University Research Foundation 3D Meta-Optics for High Energy Lasers	12.RD	20100669-04-CRF	-	10,400
Advanced Optical Fibers for High Power Fiber Lasers	12.RD	W911NF-10-1-0423	-	318,366
Light Filamentation Science	12.RD	232897	-	40,718
Novel Fiber Concepts for High Power Single Mode Fiber Lasers	12.RD	W911NF-12-1-0332	2,736	186,999
FirstString Research Incorporated A Novel Peptide-based Topical Therapeutic to Promote Corneal Regeneration and Restore Corneal Biomechanics Following Blast and Burn Injuries	12.RD	W81XWH-15-C-0146	-	17,615
Leidos Incorporated Organizational Justice Training for Supervisors	12.RD	P010188654	-	182,470
PK3 Polymer Kelp	12.RD	P010189631	-	74,818
Polymer Kelp	12.RD	P010189631	-	38,202
Synthesis of a Propene Compound	12.RD	P010187845	-	51,800
Massachusetts Institute of Technology Evaluation of Radiation-induced Photonic Defects in Si Ge Chalcogenides and Polymers	12.RD	5710003309	-	83,451
Nanowise LLC Oxygen Separation from Air to Provide Supplemental Oxygen for Injured Soldiers	12.RD	None	-	10,939
Rutgers The State University of New Jersey Single Crystal Fiber Lasers	12.RD	4816 PO # 445244	-	131,326
Scientific Research Corporation Clemson University support for Personnel and Readiness Cyberspace Operations Course	12.RD	SR20160539 (TZ40)	-	29,393



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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Defense, continued</b>				
Pass-through programs from, continued:				
Scientific Research Corporation, continued				
Joint Mission Environment Test Capability (JMETC) Support	12.RD	TO# SR20170068//BOA# SRC-BOA-0011-16-001 Clemson-TRMCBOA-19 / TO# SR20141971 //	-	175,059
Test Capabilities Development (TCD) for the Test Resource Management Center (TRMC)	12.RD	SRC0044-BA97-CP-1	-	(14,551)
Test Resource Management Center (TRMC) Test Capabilities Development (TCD)	12.RD	SR20160780 (T216) // SRC-BOA-0011-16-001	-	190,634
Solutions IES				
Estimating Mobile-Immobile Mass Transfer Parameters Using Direct Push Tools	12.RD	2015.0031.ARMY	-	129,084
Sotera Defense Solutions Incorporated				
Hydrothermal Cladding of Single Crystal Fibers of Yb Doped YAG	12.RD	SC160015//Prime # N00173-14-D-2023	-	40,028
Southwest Research Institute				
CWA Thermal Defeat in Reactive Atmospheres	12.RD	J99059CP	32,284	41,020
Structured Materials Industries Incorporated				
Transparent Electromagnetic Shield Coatings	12.RD	42011-081215-02 // CU Ref# 20150002800	-	47,001
TH Wiedemeier & Associates Incorporated				
Providing Additional Support for MNA by Including Quantitative Lines of Evidence for Abiotic Degradation and Co-Metabolic Oxidation of Chlorinated Ethylenes	12.RD	201502	-	88,678
University of California - Santa Barbara				
Bio-Inspired Synchronization and Sensors for Distributed Mobile Gunfire Detection Enhancing Situational Awareness	12.RD	KK1524	-	27,085
University of Dayton Research Institute				
Carbon Dots for Energy Conversion and Storage Applications	12.RD	RSC16015/K75401	-	561
Carbon Dots for Energy Conversion and Storage Applications	12.RD	RSC16113	-	48,703
University of Delaware				
Tailored University Feedback for Forming (TuFF)	12.RD	42525	-	585,523
University of Illinois				
Internal Cooling of Fiber and Disc Lasers by Radiation Balancing and Other Optical or Phonon Processes	12.RD	084272-16069	-	56,569
University of Michigan				
Heat Rejection Using Advanced Materials - Passive and Active Cooling Strategies	12.RD	3003058759	-	82,599
Hybrid Electric Vehicle Thermal Management System Design	12.RD	3003058759	-	(2,020)
Improving Energy Efficiency and Mobility of Connected Fleets via Route Preview and Cooperative Control	12.RD	3003058759	-	99,656
Meta-Materials Design for Tank Tread Backers Pads	12.RD	3003058759	-	112,094
Modeling and Optimization of Electrified Propulsion Systems	12.RD	3003058759	-	2,775
Optical Control Pairing and Scheduling for Manned-Unmanned Vehicles Teaming Based on RoboTrust Algorithms	12.RD	3003058759	-	33,789
University of North Carolina - Charlotte				
3D and Conformal Metaoptics (COMET)	12.RD	20160506-01-CLE	-	35,000
Virginia Polytechnic Institute				
Chiral Spin Liquids and Other Topological Phases of Cold Atoms and Molecules in Optical Lattices	12.RD	450408-19244	-	57,564
<b>Total Department of Defense</b>			<b>251,929</b>	<b>8,322,963</b>
<b>Department of the Interior</b>				
Administrative Histories of Fort Sumter National Monument and Charles Pinckney National Historic Site	15.RD	P14AC01689	-	6,909
Analysis of Bird Population Count Data	15.RD	G16AC00400 RWO #101	-	5,676
Analysis of NPS Fire Effects Data	15.RD	P16AC01814	-	6,999
Bat Assemblages at Big South Fork National River and Recreation Area (BISO): Potential Effects of Prescribed Fire	15.RD	G14AC00049	-	9,800
Community and Ecosystem-Level Effects of Growing v. Dormant Season Burning in the Southern Appalachians	15.RD	L16AC00192	-	24,714
Conservation Corridors for Desert Tortoises	15.RD	G13AC00019	-	1,456
Conservation Leadership (Science Advisor to the Director NPS)	15.RD	P13AC01379	-	134,436
Conservation of Parrott Rifle Tubes, Carriages, and Chassis at Fort Sumter	15.RD	P16AC00782	-	79,662
Department of Interior Strategic Sciences Group (SSG) Support	15.RD	G16AC00110	-	6,678
Eastern Brown Pelicans: Dispersal Seasonal Movements and Monitoring of PAH's and Other Contaminants in the Northern Gulf of Mexico	15.RD	G12AC20367 RWO #91	-	206,822

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of the Interior, continued</b>				
Evaluating Bat Community Structure Post-WNS in Chickamauga and Chattanooga National Military Park	15.RD	P16AC01114	-	17,052
Evaluating the Effect of White-Nose Syndrome on Long-Term Bat Community Structure and Remnant Bat Population Ecology	15.RD	G16AC00056 RWO #99	-	35,038
Foresight for Disaster Management: Infrastructure Risk Index Analysis	15.RD	P16AP00189	-	19,939
Fuels Management and Cultural Landscape Restoration Kings Mountain National Military Park and Other Southeast Region Parks	15.RD	P15AC01798	-	6,611
Historic Structure Report for Civilian Conservation Corps (CCC) Era Structures and Features at Kings Mountain National Military Park and Adjoining Kings Mountain State Park	15.RD	P15AC01156	-	42,051
Human and Ecological Health Impacts Associated with Water Reuse: Engineered Systems for Removing Priority Emerging Contaminants	15.RD	G15AP00171 P08AC00215 (formerly J5500080012)	132,014	132,014
Internship Program for Fire and Fuels Management	15.RD	L14AC00163	-	5,702
JFSP Project 14-1-06-19-- Forest Fire Alters Disinfection Byproduct Precursors from Forested Watersheds	15.RD	L14AC00163	-	79,328
Liquefaction Probability Analysis of Pleistocene Deposits in the Greater Charleston South Carolina Area	15.RD	G16AP00118	-	31,634
Man and the Biosphere Designation-Advising and Compliance	15.RD	P16AC01672	-	2,950
Multiscale Random Field-Based Probabilistic Regional Liquefaction Mapping	15.RD	G17AP00044	-	38,859
Needs Assessment for Facilities Maintenance Specialty Career Field	15.RD	P12AC11224	-	35,065
Needs Assessment for Visitor and Resource Protection and Three Specialty Career Fields in Collaboration of the CESU Network	15.RD	P12AC11224 (H5000085050)	-	14,347
NPS Southeast Region Marine Science Support Center	15.RD	P15AC01833	-	7,281
Real Time Monitoring to Support Environmental Impact Management Strategies for Road Construction Activities on Foothills Parkway: Wears Valley Bridge Number 2	15.RD	P10AC00544 (formerly J5471100020)	-	8,701
Real Time Monitoring to Support Environmental Impact Management Strategies for Road Construction Activities on Foothills Parkway: Wears Valley Bridge Number 2	15.RD	P15AC00367 (under Master # P14AC00882)	-	20,433
Reducing Uncertainty of Liquefaction Hazard Assessments in Aged Soil Deposits	15.RD	G16AP00003	-	11,700
Refinement of Training Needs Assessment for National Park Service within the Office of Communications	15.RD	P12AC11224	-	16,366
Retreat of Tidally Influenced Freshwater Forested Wetlands in the Southeast: Biogeochemical Investigations and Field Support	15.RD	G14AC00132	-	41,144
Shorebird Habitat Use During Migration in Cape Romain NWR	15.RD	G15AC00231	-	(322)
South Carolina Alligator Adaptive Management Strategies: Population Dynamics Habitat Utilization and Conservation Threats	15.RD	G12AC20329 RWO #92	-	8,038
Spatial Ecology of American Alligators	15.RD	G15AC00264	-	1,001
Spatial Ecology of Seabirds	15.RD	G15AC00232	-	6,488
Spatial Ecology Movement Patterns and At-Sea Habitat Use of Brown Pelicans in the South Atlantic Bight	15.RD	G16AC00395 RWO #100	-	131,661
State Water Resources Research Institute Program	15.RD	G16AP00082	23,662	87,739
The Effectiveness of Community Conservation Enterprises as a Tool for Sustainable Community Livelihoods and Conservation of Mountain Gorillas Across the Virunga Trans-boundary Landscape	15.RD	F16AP00402	-	26,126
The Effects of Management on Carbon Sequestration in Pocosin Wetlands of the Great Dismal Swamp Virginia	15.RD	G14AC00131	-	35,040
Visitor Use Management Research of Delaware Water Gap National Recreation Area	15.RD	P14AC01707	-	59,211
Pass-through programs from:				
Florida Fish & Wildlife Conservation Commission				
Conserving Florida Grasshopper Sparrows by Understanding Predation Impacts and Habitat Use by a Common Nest Predator the Eastern Spotted Skunk In Relation to On-going Prescribed Fire Management	15.RD	16105	-	47,741
Montana Fish Wildlife & Parks				
Swift Fox Habitat and Dispersal on the Northern Great Plains of Montana	15.RD	FWP# 17-575	-	10,024
National Fish & Wildlife Foundation				
Northern Great Plains Swift Fox Connectivity (MT)	15.RD	0103.16.051313	-	85,974
North Carolina Wildlife Resources Commission				
Factors Influencing Bog Turtle Abundance and Nest Success in North Carolina	15.RD	WM-0306 DIF-0026 // PO No. NC10362680 // NC-F-	-	45,598
Population Analysis of Self-Sustaining Trout in North Carolina Streams: Current Dynamics and Future Monitoring Strategies	15.RD	F17AF00221	-	34,150
South Carolina Department of Archives & History				
Santee Storm Towers Documentation Project	15.RD	None	-	22,665

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of the Interior, continued</b>				
Pass-through programs from, continued:				
South Carolina Department of Natural Resources				
A Resurvey of Historical Green Salamander Locations in South Carolina	15.RD	SCDNR FY2017-016 F16AP00113 (P24014306116P240_P967)	-	9,020
Carolinas Regional Acoustic Bat Surveys	15.RD	SCDNR FY2015- 001/P24044304415	-	14,053
Determining Shorebird Utilization of Horseshoe Crab Spawning in Cape Romain NWR	15.RD	SCDNR FY2015- 0022/P24019497215	-	17,076
South Carolina Department of Natural Resources, continued				
Distribution Population Ecology Genetic Relatedness and Habitat Associations of Eastern Spotted Skunks in South Carolina	15.RD	SCDNR FY2016- 007/P24014403016	-	32,213
Impacts of Special Hunting Clinics on the Recruitment and Retention of Youth and Young Adult Hunters in South Carolina (Year 2)	15.RD	SCDNR FY2017- 001/P24016440117	-	12,431
Loggerhead Shrike Distribution and Population Ecology in South Carolina	15.RD	SCDNR FY2016- 010/P24019084009	-	22,886
South Carolina Small River Conservation Planning Project (2016-2018)	15.RD	SCDNR FY2017-011 SCDNR P24014306012/P24014406 012	-	9,211
Status Assessment for Blue Ridge and Piedmont Herpetofauna of High Priority in South Carolina	15.RD	SCDNR P24014306012/P24014406 012	-	9,293
University of Wyoming				
The Persistence of American Pika ( <i>Ochotona Princeps</i> ) in the Greater Yellowstone Ecosystem in a Future Warmer World	15.RD	1002954E-CU	-	4,707
Wildlife Management Institute				
Interactive Conservation Planning for the Appalachian LCC (ALCC)	15.RD	ALCC 2014-02	-	148,173
<b>Total Department of the Interior</b>			<u>155,676</u>	<u>1,929,564</u>
<b>Department of Justice</b>				
Pass-through programs from:				
Chesterfield County School District				
Testing Integrative Models to Improve School Safety; Positive Behavior Interventions Support and the Olweus Bullying Prevention Program	16.RD	14CK-BK0012-CU	-	396,667
<b>Total Department of Justice</b>			<u>-</u>	<u>396,667</u>
<b>Department of Labor</b>				
Pass-through programs from:				
Greenville Technical College				
SC ACCELERATE - SC Adult College Completion Through E-Learning Resources and Academic Tracks to Employment	17.RD	TC-23765-12-60-A-45	-	181,097
<b>Total Department of Labor</b>			<u>-</u>	<u>181,097</u>
<b>Department of State</b>				
Internet Democracy Support for West Africa	19.RD	S-LMAQM-12-GR-1033	-	(457)
<b>Total Department of State</b>			<u>-</u>	<u>(457)</u>
<b>Department of Transportation</b>				
University Transportation Center - Center for Connected Multimodal Mobility (C2M2)	20.RD	69A3551747117	-	57,874
Pass-through programs from:				
Rowan University				
Risk Analysis of Autonomous Vehicles in Mixed Traffic Streams	20.RD	RU # 49198-28-27	-	12,004
South Carolina Department of Transportation				
Best Construction Practices for Longitudinal Joint Construction and Compaction	20.RD	1824; SPR No. 728	-	60,412
Best Practices for Assessing Culvert Health and Determining Appropriate Rehabilitation Methods	20.RD	1694; SPR No. 718	-	37,900
Characterization of Portland Cement Concrete Coefficient of Thermal Expansion in South Carolina	20.RD	1730; SPR No. 722	-	25,285

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Transportation</b>				
Pass-through programs from, continued:				
Compliance with the United State Environmental Protection Agency (USEPA) Effluent Limitation Guidelines-Turbidity Control and Surface Outlets	20.RD	SPR No. 702	-	94,481
Cost Effective Strategies for Estimating Statewide AADT	20.RD	1691; SPR No. 717	45,191	108,870
Cross-Slope Verification using Mobile Scanning on SCDOT Interstates	20.RD	1714; SPR No. 719	5,481	130,132
Development of SC Databases and Calibration Factors for the Highway Safety Manual (HSM)	20.RD	1621; SPR No. 712	-	46,057
Evaluation of Open Graded Friction Courses: Construction Maintenance and Performance Phase II	20.RD	1781; SPR 725	-	101,730
Innovative Bridge Research and Deployment Project (IBRD-2012) NEXT-D Implementation and Field Monitoring of Hanging Rock Creek Bridge	20.RD	1596; Proj No. 29L1CEBR29018	-	10,245
Integration of the Incident Command System (ICS) Protocol for Effective Coordination of Multi-Agency Response to Traffic Incidents	20.RD	1543; Proj No. 699	-	1,597
Operational and Economical Analysis of Access Management	20.RD	1665; SPR No. 715	15,850	113,387
Professional Services Contract Manager On-Demand Training and Best Practices	20.RD	1635; SPR 713	-	21,987
SCDOT Asset Collection	20.RD	1692; SPR No. 716	42,178	136,200
Validation of Contractor HMA Testing Data in the Materials Acceptance Process - Phase II	20.RD	1508; Project No. 697	-	432
University of South Carolina		17-3296/PO#2000031396/USC		
Calibration of the AASHTO Pavement Design Guide to South Carolina Conditions - Phase II	20.RD	#15520FB40	-	14,707
University of Tennessee				
Big Data Analytics for Connected Vehicle Data Infrastructure Resiliency	20.RD	13-Clemson-OE3/	-	28,104
Development of a Security Platform for Vehicles to Infrastructure Network	20.RD	13-Clemson-OE2/8500037533	-	16,692
STC - Educational Component	20.RD	8500037533	-	55,340
Wisconsin Department of Transportation				
Evaluation of H-pile Corrosion Rates for Wisconsin Bridges Located in Aggressive Subsurface Environments	20.RD	0092-16-03	-	45,231
<b>Total Department of Transportation</b>			<b>108,700</b>	<b>1,118,667</b>
<b>Department of the Treasury</b>				
Mechanochromic Materials Research and Development Services Phase I	21.RD	TEPA16-35712	-	144,169
<b>Total Department of the Treasury</b>			-	144,169
<b>Appalachian Regional Commission</b>				
Science on the Move: STEM Engagement Opportunities to Rural Communities	23.RD	SC-17835-C1-16	-	14,799
<b>Total Appalachian Regional Commission</b>			-	14,799
<b>National Aeronautics and Space Administration</b>				
A Sounding Rocket Investigation of Neutral Jets Associated with Auroral Arcs	43.RD	NNX14AH09G	-	151,052
AZURE: Auroral Zone Upwelling Release Experiment	43.RD	NNX15AL71G	96,214	205,987
Chasing the Most Powerful Blazars	43.RD	NNX15AV09G	-	34,264
Chasing the Most Powerful Blazars - NRA/Research Opportunities in Space and Earth Sciences - 2015 (ROSES-2015)	43.RD	NNX17AC35G	-	4,401
Cosmic Chemical Memory and Importance for Cosmochemical Samples	43.RD	NNX14AI25G	-	71,501
Cosmic Chemical Memory and the Building Blocks of the Solar System	43.RD	NNX17AE32G	-	20,850
Mesosphere-Lower Thermosphere Turbulence Experiment (MTEX) (Co-I Proposal Clemson University)	43.RD	NNX13AE26G	-	16,142
MIST: Mesospheric Inversion-layer Stratified Turbulence Study	43.RD	NNX14AH45G	-	5,469
NASA Space Technology Research Fellowships (NSTRF) - Fall 2014	43.RD	NNX14AN43H	-	61,094

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<b>National Aeronautics and Space Administration, continued</b>				
NRA / NASA Earth and Space Science Fellowship (NESSF) Program - 2014	43.RD	NNX13AM28H	-	5,430
NRI-Small: Long Thin Continuum Robots for Space Applications	43.RD	NNX12AM01G	-	114,338
ROSES 2014/Fermi Guest Investigator - Cycle 8 Hunting High-Redshift Bl Lacertae Objects	43.RD	NNX15AU67G	-	42,341
ROSES 2015/Exoplanet Research Program - Direct Imaging and Interferometry of Proto-planets at the Epoch of Disk Clearing	43.RD	NNX16AJ81G	-	14,796
ROSES-2014/Fermi Guest Investigator - Cycle 8 Veritas Observations Of Hard New Fermi-Lat Source	43.RD	NNX15AU68G	-	41,113
ROSES-2015/Fermi Guest Investigator - Cycle 9 Rapid Optical/Near-Infrared Follow-up of Fermi Transients	43.RD	NNX16AR76G	-	58,569
ROSES-2015/Fermi Guest Investigator - Cycle 9 Hunting High-Redshift Bl Lacertae Objects	43.RD	NNX16AR71G	-	24,236
ROSES-2015/Fermi Guest Investigator - Cycle 9 The Lat On Steroids And The Role Of Galaxies In The Universe	43.RD	NNX16AR72G	-	36,022
ROSES-2015/Swift Guest Investigator - Cycle 12 On The Origin Of The Extragalactic Gamma-Ray And Neutrino Backgrounds	43.RD	NNX16AN68G	-	29,649
Swift Nustar and the Origin of the X-Ray Background	43.RD	NNX14AH66G	-	1,138
Synthetic Biology for Recycling Human Waste into Nutraceuticals and Materials: Closing the Loop for Long-Term Space Travel	43.RD	NNX15AU46G	-	196,858
Utilizing Space-Based Technology to Determine Hydrological Properties of Soils for Characterizing Understanding and Predicting Terrestrially Linked Components of the Hydrologic Cycle	43.RD	NNX15AD47G	19,924	124,468
Pass-through programs from:				
ASTRA				
Transport Chemistry and Energetics of Water in the Mesosphere and Lower Thermosphere and Implications for Polar Mesospheric Cloud Occurrence	43.RD	NNX16AF67G // Subcon #171-01	-	76,805
College of Charleston				
BioNanomanufacturing of Carbid Aerogels	43.RD	521192-CMMartinez	-	18,246
Biotransformation of Space Mission Organic Waste and Martian Regolith into Nutraceuticals and Biocement	43.RD	521192-CMZheng	-	22
Grading- and Shape-Dependent Multiscale Mechanics Model for Predicting Behavior of Extraterrestrial Soil Simulants	43.RD	521179-RP-CMChen	-	8,225
Graduate Research Assistantship: Application of Magnetic Rotational Spectroscopy for NanoTesla Magnetic and Viscosity Sensors	43.RD	None	-	10,438
Graduate Research Assistantship: The Alteration of Titanium and its Alloys for Enhanced Tribological Properties by the Deposition of Metallic/Ceramic Nanolaminates and Noble Gas Ion Implantation	43.RD	None	-	429
MiniREAP 2016: A Novel "Full Spectrum" Absorbing Hybrid Active Layer for Improving the Efficiency of Thin-Film Solar Cells	43.RD	521179-RP-CMPilla	-	5,826
MiniREAP 2016: Development of Next-Generation Ceramic-Matrix Composites via the Materials-by-Design Approach	43.RD	521179-RP-CMGrujicic	-	10,000
MiniREAP 2016: Thermal/Energy Controls Design and Optimization	43.RD	521179-RP-CMSummers	-	9,817
Multi-Layer Magnetostrictive NDE/SHM Sensors	43.RD	521192-CMMyers	-	225
Palmetto Academy 2016: Creation of Functional Building Blocks with Simulated In-situ Martian Materials	43.RD	521179-PA-CMChen	-	10,586
Palmetto Academy 2016: Student Participation in Developing Nanomaterials-Derived Technologies for Space Applications	43.RD	521179-PA-CMSun	-	13,678
Palmetto Academy 2016: Synthetic Biology Enabled Recycling of Waste for Life Support Systems	43.RD	521179-PA-CMBlenner	-	13,557
Palmetto Academy 2017: In Situ Composite Manufacturing via Biocementation of Martian Soil	43.RD	521179-PA-CMChen2	-	10,803
Regenerable Cross Flow Filtration for Manned Mission to Mars	43.RD	521179-RP-CMCox	-	1,718
Cornell University				
Waves and Instabilities from a Neutral Dynamo (WINDY)	43.RD	73921-10522	-	120,171
Freight Farms Incorporated				
T6.04-980 Self-Sustaining Crop Production Unit	43.RD	NNX16CA33P	-	50,113
GATS Incorporated				
Analysis of Short-Term Tidal Perturbations	43.RD	GATS_SC_12005	-	37,734
HJ Science & Technology Incorporated				
Lab-on-a-Robot Platform for in-situ Planetary Compositional Analysis	43.RD	NNX13CP49C-2	-	25,001
National Space Biomedical Research Institute				
Validation of a Cephalad Fluid Shift Countermeasure	43.RD	SMST04202 // PO#	-	70,293
Smithsonian Astrophysical Observatory				
Compton-Thick AGN: The Hunt is on (Proposal No. 17900432)	43.RD	G06-17131X	-	62,522
X-raying New Galactic Accelerators with Chandra (Proposal No. 18500092)	43.RD	G07-18043X	-	1,549

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>National Aeronautics and Space Administration, continued</b>				
Pass-through programs from, continued:				
University of Central Florida				
Leadership-Followership: Moving Beyond Traditional Leadership to Build Highly Functional Autonomous Teams	43.RD	64016352-01	-	32,258
University of Louisville				
Short-term Tidal Variability from the Troposphere to the Dynamo Region	43.RD	ULRF14-1328-01	-	56,802
University of South Carolina				
Explore a Unified Ultra-efficient and Gravity-Insensitive Flow Boiling Regime for Space Missions	43.RD	15-2784 PO#91802(15540 FC75)	-	41,943
<b>Total National Aeronautics and Space Administration</b>			<u>116,138</u>	<u>1,948,479</u>
<b>National Foundation on the Arts and Humanities</b>				
Pass-through programs from:				
Virginia Polytechnic Institute				
Identifying the Drivers of Success in Educational Programs at Nature Centers and National Parks	45.RD	451438-19244	-	16,743
<b>Total National Foundation on the Arts and Humanities</b>			<u>-</u>	<u>16,743</u>
<b>National Science Foundation</b>				
A National EPSCoR Cyberinfrastructure Student Engagement Program	47.RD	EPS-1132168	-	(1,823)
A Screened Lab Addition to Enhance New Ecological Research at Clemson's Baruch Institute	47.RD	1624705	-	5,384
ABR: Collaborative Research: Computational Jewelry for Mobile Health	47.RD	1619950	-	96,508
ADVANCE Institutional Transformation at Clemson University	47.RD	1629934	6,561	277,580
Advanced Cyberinfrastructure - Research and Educational Facilitation: Campus-Based Computational Research Support	47.RD	ACI-1341935	950,953	1,286,010
AF: Medium: Collaborative Research: Sparse Polynomials Complexity and Algorithms	47.RD	CCF-1407623	-	60,360
AF: Small: Subdivision Methods: Correctness and Complexity	47.RD	1527193	-	75,049
AIR Option 2: Research Alliance Situational Intelligence for Smart Grid Optimization and Intelligent Control	47.RD	IIP-1312260	25,288	342,213
Analysis of Stochastic Context-Free Grammars for RNA Secondary Structure Prediction	47.RD	DMS-1312817	-	34,541
Application Characterization for Adaptive Computing Platform Determination for Computational and Data-Enabled Science and Engineering	47.RD	ACI-1404981	-	12,403
BIGDATA: F: DKM: Collaborative Research: PXFS: ParalleX Based Transformative I/O System for Big Data	47.RD	IIS-1447771	-	80,859
Biomechanics of Self-Assembly of the Lepidopteran Feeding Device	47.RD	PHY-1305338	-	62,371
Building Research Capacity for STEM Faculty Development	47.RD	1638888	-	75,226
Capillary Channeled Polymer Structures and Chemistries for High Throughout Measurement of Large Molecules	47.RD	1608663	-	185,381
Capillary-Channeled Polymer Fibers: Chemistries and Structures for Protein Separations and Analytics	47.RD	CHE-1307078	-	33,459
CAREER: A New Efficient and Cooperative Large-Scale Distributed Data Sharing System	47.RD	CNS-1254006	-	34,895
CAREER: Advancing the Mechanistic Understanding of Field-Scale Preferential Flow and Transport Processes in Soils Using Geophysics	47.RD	EAR-1151294	-	19,303
CAREER: Cross-Layer Power-Bounded High Performance Computing on Emerging and Future Heterogeneous Computer Clusters	47.RD	1551511	-	56,537
CAREER: Electromechanical Transduction of Vibratory Energy Harvesters in Random and Non-Stationary Environments	47.RD	CMMI-1055419	-	26,910
CAREER: Harnessing Hybrid Computing Resources in PetaScale Computing and Beyond	47.RD	OCI-1149644	-	113,837
CAREER: Hierarchical Mechanical Models of Cell Constructs	47.RD	CBET-1254609	-	93,160
CAREER: High Resolution Spectrochemical Imaging Through Tissue	47.RD	CHE-1255535	-	73,840
CAREER: Integrated Materials-Mechanics-Manufacturing Approach to Hot Blank -Cold Die (HB-CD) Forming of Lightweight Alloy Sheets	47.RD	CMMI-1254670	-	65,271
CAREER: Modeling Irrationalities of Designers to Support their Decisions for Net-Zero Energy Buildings	47.RD	CMMI-1054122	-	3,237
CAREER: Models for Supply Chain Design and Logistics Management of Biofuels	47.RD	CMMI-1462420	-	80,688
CAREER: Particle Magnetophoresis in Ferrofluid Microflows for Lab-on-a-Chip Applications	47.RD	CBET-1150670	-	45,106

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>National Science Foundation, continued</b>				
CAREER: Student Motivation and Learning in Engineering	47.RD	1055950	-	62,828
CAREER: The Evolution of Gas in Disks - Setting the Stage for Planet Formation	47.RD	AST-0954811	-	38,468
CAREER: Cooperative Control and Decision-Making for Human-Agent Collaborative Teams	47.RD	1454139	-	66,542
CAREER: Detecting Patterned Profiles for Functional and Dysfunctional Teamwork	47.RD	1654054	-	5,071
CAREER: Enabling Low-Cost Maintenance-Free Long-Term Embedded Sensing Without Batteries	47.RD	1453607	-	96,732
CAREER: Hierarchical Modeling for Rational Catalyst Design in Aqueous Conditions	47.RD	1554385	-	71,162
CAREER: InN Nanowire Based Multifunctional Nanocantilever Sensors	47.RD	1559711	-	19,793
CAREER: Innovative Methods for Designing Adaptive Clinical Trials	47.RD	1651912	-	37,759
CAREER: Multiscale Study of the Structure and Dynamics of Nanoparticle-Protein Coronae	47.RD	1553945	-	63,366
CAREER: Perceptually Guided Hand Motion Synthesis	47.RD	1652210	-	33,746
CAREER: Quantifying the Adaptability of Building Structures Envelopes and Foundations	47.RD	1553565	-	45,379
CAREER: Self-Protecting Artificial Implants and Invigorating the STEM Education Pipeline with Biomaterials	47.RD	1555224	-	52,201
Career: Towards Engineering Electronic Defects in Inorganic Luminescent Materials	47.RD	1653016	-	27,201
Carolina Dynamics Symposium 2016-2018	47.RD	1600746	-	8,370
CC* Cyber Team: Cyberinfrastructure Empowerment for Diverse Research Scholarship and Workforce Development (CI Empower)	47.RD	1659297	-	7,821
CC*Data: National Cyberinfrastructure for Scientific Data Analysis at Scale (SciDAS)	47.RD	1659300	270,313	306,434
CC*IE IAM: FeduShare: Bridging Campus and Research Identity and Access Management for Self-Managed Collaboration	47.RD	ACI-1440609	16,471	68,868
CC*IE Region: Southern Partnership in Advanced Networking (SPAN)	47.RD	ACI-1440659	23,389	50,224
CEDAR: Exploration of Lower-atmosphere Wave Forcing Vertical Wave Coupling and Their Impacts on the Ionosphere and Thermosphere Variability Using WAM Lidar and ISR	47.RD	1705448	-	2,696
Center for Aviation and Automotive Technological Education Using Virtual E-School [CA2VES]: A Resource to Meet Technician Workforce Needs	47.RD	1501695	200,356	968,592
Center for Aviation and Automotive Technology Education Using Virtual E-School [CA2VES]	47.RD	DUE-1104181	282,845	282,845
CGV: Large: Collaborative Research: Modeling Display and Understanding Uncertainty in Simulations for Policy Decision Making	47.RD	IIS-1212501	-	26,492
CHS: Small: Looking Across the Uncanny Valley: Procedural and Data-Driven Methods for Gaze Modeling	47.RD	1423189	-	97,281
CICI: Data Provenance: Collaborative Research: Provenance Assurance Using Currency Primitives	47.RD	1547164	-	48,142
CI-New: Collaborative Research: HomeSHARE - Home-based Smart Health Applications across Research Environments	47.RD	1629437	-	649
CI-SEEDS: Seeding the Next Generation Cyberinfrastructure Ecosystem	47.RD	ACI-1212680	-	4,869
CNH-L: Coupled Social and Ecological Consequences of Conservation Easements Collaborative Research: "Hands-On" Collaborative Reasoning Across the Curriculum	47.RD	1518455	7,680	163,608
Collaborative Research: CEDAR--Development and Application of a Multi-site Observing Network to Study Mid-latitude Thermospheric Dynamics	47.RD	DUE-1022941	-	17,489
Collaborative Research: CEDAR--Observational and Numerical Studies of Tide-planetary Wave Coupling	47.RD	1138931	-	2,296
Collaborative Research: Data Selection for Unique Model Identification	47.RD	AGS-1139048	-	46,714
Collaborative Research: Developing Engineer of 2020 Traits: How Do Non-curricular Activities Impact African American Students?	47.RD	DMS-1419038	-	46,318
Collaborative Research: Effects of Hydrologic Processes on In Situ Stress Transients	47.RD	EEC-1159813	-	70,124
Collaborative Research: Fabry-Perot Interferometer (FPI) to Study Ion-Neutral Coupling Near the Southern Crest of the Equatorial Ionization Anomaly in the American Sector	47.RD	EAR-0944315	-	37,945
Collaborative Research: Halocarbon Biogeochemistry in Coastal Wetland Ecosystems	47.RD	AGS-1153294	-	1,650
Collaborative Research: II-NEW: Marcher - A Heterogeneous High Performance Computing Infrastructure for Research and Education in Green Computing	47.RD	1529927	-	87,873
Collaborative Research: Intracellular Localization of Biosynthetic Pathways for Conversion of Lipids to Dicarboxylic Acids in Oleaginous Yeast	47.RD	1551262	-	79,186
	47.RD	CBET-1403099	-	75,717

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>National Science Foundation, continued</b>				
Collaborative Research: Jicamarca Radar Studies of Gravity Waves from D Region to Lower F Region	47.RD	AGS-1143514	-	76,384
Collaborative Research: Systematic Review of Studies to Improve Success in STEM Degree Programs of Hispanic Students Matriculating through Two-Year Institutions	47.RD	DUE-1446323	-	48,007
Collaborative Research: US-Brazil IRES / Analytical Applications of Nanomaterials and Microfluidic Devices	47.RD	1565508	-	31,125
Collaborative Research: An Intelligent Restoration System for a Self-healing Smart Grid (IRS-SG)	47.RD	ECCS-1408141	-	15,037
Collaborative Research: Characterizing Atmospheric Gravity Waves and their Effects on the Antarctic Ozone Layer	47.RD	1705450	-	16,611
Collaborative Research: CICI: Regional: SouthEast SciEntific Cybersecurity for University REsearch (SouthEast SECURE)	47.RD	1642102	-	40,135
Collaborative Research: CICI: Secure and Resilient Architecture: SciGuard: Building a Security Architecture for Science DMZ Based on SDN and NFV Technologies	47.RD	1642143	-	37,853
Collaborative Research: Comprehensive Investigation of Midlatitude Ionospheric Irregularities	47.RD	1360594	-	70,035
Collaborative Research: EAGER: Energy Harvesting via Thermo-Piezoelectric Transduction	47.RD	1549977	-	57,057
Collaborative Research: Exploring the Evolution of Design Requirements Throughout the Design Process Using Network Models	47.RD	1463370	-	54,655
Collaborative Research: Heterogeneous Ice Nucleation in Clouds: A Synergistic Experimental and Simulation Approach	47.RD	1541944	-	55,189
Collaborative Research: High Resolution Spectroscopy and Spectro-Astrometry of Warm Gas in Herbig Ae/Be Stars: A Search for Forming Gas Giant Planets	47.RD	1517014	-	50,465
Collaborative Research: Intersectionality of Non-normative Identities in the Cultures of Engineering (InIce)	47.RD	EEC-1428523	24,239	25,210
Collaborative Research: IUSE: EHR: Engaged Student Learning Exploration and Design Tier: Engaging and Enabling Learners to Reason Logically about Code	47.RD	1611714	-	45,971
Collaborative Research: Student Perspectives on Researcher Identity and Transformed Epistemologies (SPRITE)	47.RD	1531607	-	91,700
Collaborative Research: Uncovering the Dynamics and Functionality of Origami Structures and Materials	47.RD	1633952	-	41,176
Collaborative Research: Variational Structure Preserving Methods for Incompressible Flows: Discretization Analysis and Parallel Solvers	47.RD	1522191	-	48,231
Collaborative Research: Who's Not at the Table? Building Research Capacity for Underserved Communities in Engineering	47.RD	1551605	-	103,068
Collaborative Research: A Long-Term Investigation of Auroral and Tidal Forcing of E-Region Thermospheric Winds at High Latitudes	47.RD	1552214	-	43,371
Computational-Experimental Insight across Time and Length Scales of Dynamics in Ionic Polymers	47.RD	1611136	-	84,083
Conductance Variability in Non-Conjugated Polymers: Memristors for Neuromorphic Applications	47.RD	1507266	-	107,141
Coupling Small-Particle Adsorbents with Membranes for Trace-Containment Removal in Water Treatment	47.RD	CBET-1236070	-	28,461
CPS: Synergy: Security of Distributed Cyber-Physical Systems with Connected Vehicle Applications	47.RD	1544910	-	200,879
CRII: CHS: Collaboratively Perceiving Comprehending and Projecting into the Future: Supporting Team Situational Awareness with Adaptive Collaborative Tactons	47.RD	1566346	-	64,990
CRII: CHS: Recommender Systems for Self-Actualization	47.RD	1565809	-	52,989
CRISP Type 1: Data-driven Real-time Simulation for Adaptive Control of Interdependent Infrastructure Systems	47.RD	1638321	-	39,991
CSBR: Natural History: Expanding the footprint and the reach of the Clemson University Arthropod Collection	47.RD	1457909	-	113,021
CSR: Large: Collaborative Research: Computational Jewelry for Mobile Health	47.RD	CNS-1314342	-	32,330
CSR: Large: Collaborative Research: Smart Earpiece for Supporting Healthy Eating Behaviors	47.RD	1565268	-	69,118
CyberSEES: Type 1: Enabling Sustainable Water Supplies Through Self-Powered Sensor-Based Monitoring	47.RD	1539536	-	143,520
De Branges Spaces as Models for a General Theory of Function Spaces	47.RD	1600874	-	33,267
Digitization TCN: Collaborative Research: The Key to the Cabinets: Building and Sustaining a Research Database for a Global Biodiversity Hotspot	47.RD	EF-1410094	15,927	26,380
Dimensions: Collaborative Research: Functional Diversity of Chemosymbiosis in Lucinid Bivalves from Coastal Biomes	47.RD	1342763	-	88,969



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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>National Science Foundation, continued</b>				
Dissertation Research: Linking Genes to Cues: How Molecular Mechanisms Explain Individual Variation of Adaptive Plasticity to an Environmental Cue	47.RD	1601485	-	14,761
DMREF: Collaborative Research: An Integrated Multiscale Modeling and Experimental Approach To Design Fouling-Resistant Membranes	47.RD	1534304	-	162,775
EAGER: An Efficient and Effective Distributed Information System	47.RD	IIS-1354123	-	12,141
EAGER: Novel Photoacoustic Sensor Using Piezoresistive GaN Microcantilever	47.RD	1500007	-	3,985
EAGER: Advancing Understanding of Function Modeling Reasoning and Thinking in Design by Mapping Behaviors to Cognitive Explanations	47.RD	1547236	-	106,730
EAGER: Building a Framework to Advance Research through Undergraduate Participation: Investigating pH in 3D Tissue Test Systems	47.RD	CBET-1451319	-	12,526
EAGER: Characterization Prediction and Management of Latency Variation in Virtualized HPC and Warehouse Scale Systems	47.RD	1642542	-	116,316
EAGER: Collaborative: PRICE: Using Process Tracing to Improve Household IoT Users' Privacy Decisions	47.RD	1640664	-	18,744
EAGER: Corrosion Reduction in Reinforcing Steel of Concrete Structures Through Grain Size Alteration	47.RD	1552794	-	64,360
EAGER: Defending Against Visual Cyberbullying Attacks in Emerging Mobile Social Networks	47.RD	1537924	-	104,882
EAGER: Feedback-based Network Optimization for Smart Cities	47.RD	1647361	-	38,949
EAGER: Towards a Traffic Analysis Resistant Internet Architecture	47.RD	1643020	-	100,650
EAGER: UVC Microbial Inactivation Within Model Water Treatment Membrane Modules Via X-Ray-Driven Radioluminescence	47.RD	1551534	-	8,350
Eighth Annual Graduate Student Mini-conference in Computational Mathematics; Clemson SC; February 5-6 2016	47.RD	1547107	-	861
Enhanced Production of Advancing Biofuels Through Model Guided Synthetic Biology	47.RD	CBET-1437836	-	110,672
Evaluating Sustainable Disposable Options for Compostable Biopolymers	47.RD	1553126	-	64,893
Experimental and Modeling Study of Risk from Ember Storms	47.RD	CMMI-1200560	-	8,118
Experimental Investigation of Multiscale Subgrid-Scale Mixing and Turbulence-Chemistry Interaction	47.RD	CBET-1333489	-	77,442
Exploiting Liquid-State Transduction Materials in Vibratory Energy Harvesting	47.RD	CMMI-1335049	-	92,215
Exploring Non-Normative Forms of Capital Wealth and Knowledge Used by Engineering Students	47.RD	1463808	-	25,592
Fast Algorithms for Large-Scale Nonlinear Algebraic Eigenproblems	47.RD	1719461	-	16,744
Fast and Scalable Multigrid Methods for Hypergraph Partitioning Problems	47.RD	1522751	-	94,201
Fluorescent Polymer Nanoparticles for Nano-Imaging and Sensing	47.RD	CHE-1412694	-	58,905
GOALI: Low-Ash Lignin Biofuel from Black-Liquor Streams	47.RD	CBET-1236759	-	9,145
GOALI: Tuning Renewable Solvent Systems for Lignin Purification and Fractionation	47.RD	CBET-1403873	-	70,714
GP-EXTRA: Building An Affective Pathway To The Geosciences Through Experiential Learning Opportunities For Non-Geoscience Majors	47.RD	1540702	-	214,917
Graduate Research Fellowship	47.RD	1246875 & 1744593	-	95,595
Graduate Research Fellowship Program	47.RD	1246875	-	(3,830)
Graduate Research Fellowship Program	47.RD	1246875 & 1744593	-	148,647
Graduate Research Fellowship Program	47.RD	DGE-1246875	-	(6,369)
Graduate Research Fellowship Program (GRFP)	47.RD	1246875 & 1744593	-	11,814
Graduate Student Combinatorics Conference 2016	47.RD	1600767	-	2,322
Growth Rates of Bacterial Taxa in Coastal Marine Ecosystems	47.RD	OCE-1261359	7,049	100,989
Highly Conductive Reduced Graphene Oxide Films for High Performance Electronic Devices	47.RD	1538215	36,798	131,588
High-Strength Carbon Fibers from Eco-Friendly Processing of Biomass	47.RD	1462804	-	96,178
How Does the Plant Say-No More?: A Molecular Genetic Approach to Nodule Number Regulation	47.RD	IOS-1146014	-	181
I/UCRC Phase II: Collaborative Research: Ceramic Composite and Optical Materials Center	47.RD	1540025	-	19,877
I/UCRC: Collaborative Research: Center for Excellence in Logistics and Distribution Phase II	47.RD	1266013	-	2,311
I-Corps Teams: Membrane Adsorbers for Biologics Purification	47.RD	1556563	-	5,064
II NEW: Infrastructure to Support Research in Network-Aware Data-Intensive Computing	47.RD	CNS-1405767	-	5,645
III: CGV: Medium: Collaborative Research: Computational Design and 3D Printing of Textiles	47.RD	1722997	-	2,132
III: Small: Collaborative Research: Privacy-Aware Collaborative Data Sharing in Human-Centered Social Networks	47.RD	1527421	-	135,074

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>National Science Foundation, continued</b>				
Impact of Nonmigrating Tides on the Thermospheric Energy Budget and Constituents	47.RD	AGS-1112704	13,062	78,452
INSPIRE - Intentional Defaults For More Sustainable Infrastructure: Studying Interventions To Alleviate Biases in Upstream Multi-Stakeholder Decisions	47.RD	1531041	82,296	117,852
INSPIRE: Evaluating the Effect of Cyberinfrastructure on Universities Production Process	47.RD	SMA-1243436	-	1,996
Instrument Development: Ultra-Sensitive Single-Pass Electron Paramagnetic Resonance Spectrometers	47.RD	CHE-1152892	-	284,476
IRES: Call Me Globler-Under-represented Undergraduate Bioengineering Research in Singapore	47.RD	1460110	-	48,169
IUI Track-2 FEC: The Creation of Next-Generation Tools for Neuroscience-Noninvasive Radioluminescence Approaches to Optogenetics	47.RD	1632881	156,393	536,496
IUSE: EHR: Enabling Field Experiences in Introductory Geoscience Classes Through the Use of Virtual Reality	47.RD	1504619	-	72,645
IUSE: Understanding and Propagating the Essence of Successful Computing Education Projects	47.RD	1646691	-	27,816
Material Removal and Ejection Dynamics in Femtosecond Laser Machining of Microchannels in Transparent Materials	47.RD	1563426	-	89,223
MCA-PGR: Spatial and Temporal Resolution of mRNA Profiles During Early Nodule Development	47.RD	1444461	-	447,791
Mechanics of Locomotion with Nonholonomic Constraints in a Fluid Mechanism for Heterogeneously Catalyzed Sugar Alcohol Reactions: Hierarchical Modeling and Experimental Studies	47.RD	1563315	-	80,534
Mechanisms of Fluid Feeding in Insects from Nanoscale to Organism	47.RD	CBET-1438325	-	107,127
Methods Development for Systematic Investigation of Factors Driving Outcomes in Informal STEM Environmental Education Programs	47.RD	IOS-1354956	55,739	178,836
Modeling of the Subgrid-Scale Pressure-Strain-Rate Correlation in the Atmospheric Surface Layer	47.RD	1612416	17,156	50,055
Molecular Dynamics Simulations and Small Angle Neutron Scattering Studies of Light-Emitting Polymeric Nanoparticles	47.RD	AGS-1335995	-	11,909
Multimodal Membranes for High-Throughput Bioseparations	47.RD	CHE-1308298	-	97,193
Multi-Point Monin-Obukhov Similarity and Spectral Dynamics in the Convective Atmospheric Surface Layer	47.RD	1159622	-	29,975
New Methods for Studying the Time-Dependent and Steady-State Behavior of Markov Chains	47.RD	1561190	-	19,160
Novel Graphene-based Label-free Biosensor Array for Smart Health and Drug Discovery	47.RD	CMMI-1435261	-	86,069
Novel Optical Hosts: Chemistry Single Crystal Growth and Applications	47.RD	1606882	11,119	92,142
NRT-DESE: Preparing Resilient and Operationally Adaptive Communities through an Interdisciplinary Venture-based Education (PROACTIVE)	47.RD	DMR-1410727	-	97,808
NSF Graduate Research Fellowship Program	47.RD	1633608	-	28,790
NSF Graduate Research Fellowship Program	47.RD	1246875 & 1744593	-	97,884
NSF IPA	47.RD	1744593	-	11,955
NSF IPA	47.RD	1645748	-	282,553
NSF IPA	47.RD	1653037	-	161,545
NSF IPA	47.RD	AGS-1557472	-	194,562
NSF/DOE Partnership on Advanced Combustion Engines: Thermal Barrier Coatings for the LTC Engine - Heat Loss Combustion Thermal vs. Catalytic Effects Emissions Exhaust Heat	47.RD	1258714	74,217	126,382
Numerical Methods for Non-Newtonian Fluid Structure Interaction Problems	47.RD	DMS-1418960	-	55,521
On a General Class of Count Time Series Models	47.RD	DMS-1407480	-	43,811
Optical Carrier Based Microwave Interferometry for Spatially Continuous Distributed Monitoring of Structural Health	47.RD	CMMI-1359716	-	214,336
PFI: AIR Technology Translation - Functionalized III-V Nitride Based Microelectromechanical Sensors for Neutron Detection	47.RD	1512342	-	18,841
PFI: AIR Technology Translation - Functionalized III-V Nitride Based Microelectromechanical Sensors for Neutron Detection	47.RD	IIP-1512342	-	6,455
PFI: AIR-TT: Microwave Flow Cytometer: Monitor Yeast Cell Growth and Microbial Contamination in Fermentation	47.RD	1640578	-	194
PFI: AIR - TT: Novel Low-Power III-Nitride Heater Cantilever Based Selective VOC Sensor	47.RD	1602006	-	74,805
PFI: AIR-TT: Translation of Multimodal Membrane Adsorbers for Protein Purifications	47.RD	1640645	-	71,561
Phase I I/UCRC Clemson University Site: Advanced Mammalian Biomanufacturing Innovation Center (AMBIC)	47.RD	1624641	-	70,044
RAPID proposal: Impact of Storm Surge on Coastal Forest Demography in Response to Repeated Hurricane Disturbances	47.RD	1725377	-	81,179

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<b>National Science Foundation, continued</b>				
RAPID: Cascading of Extreme Events (Drought-Wildfire) in a Pristine Watershed Located in the Southeast US: Implication on Hydrology Water Quality and Microbial Communities	47.RD	1722482	-	12,921
RAPID: Extreme Flooding Mobilized Natural Organic Matter from Forested Wetlands - Implication of Mercury and Carbon Cycling in Coastal Blackwater Rivers	47.RD	1617040	8,063	41,633
RAPID: Severe Drought and Historical Extreme Flood (October 1-4 2015) Regime in South Carolina: Assessment of the Water Quality Situation	47.RD	1602451	-	24,278
RCN: Advancing Research and Education Through a National Network of Campus Research Computing Infrastructures - The CaRC Consortium	47.RD	1620695	-	7,192
REU Site: Solid-State Devices for Electronics Photonics and Magnetics Technology	47.RD	EEC-1262991	-	33,312
REU Site: Undergraduate Research in Collaborative Data Visualization Applications	47.RD	ACI-1359223	-	42,885
REU Site: Data-Intensive Computing	47.RD	OCI-1263180	-	37,971
REU Site: Interfaces and Surfaces	47.RD	1460863	-	101,465
REU Site: Solid-State Devices for Electronics Photonics and Magnetics Technology	47.RD	1560070	-	63,713
REU Site: Summer Undergraduate Research Program at Clemson University	47.RD	1560300	-	60,039
REU Site: Undergraduate Research in Biological Sciences: From Genomes to Phenomes - Exploring Function Across Scales	47.RD	1460895	-	108,817
Reversible Anion and Ion-Pair Recognition under Electronic Control	47.RD	1660329	-	36,508
RI: Small Dynamic Payload Transport and Manipulation by Teams of Cooperating Mobile Robotic-Cranes	47.RD	1710898	-	94,860
RI: Small: Vine-Like Continuum Robots	47.RD	1527165	1,486	87,706
Role of Cell Volume Changes in Mechanotransduction of Hydrostatic Pressure	47.RD	CBET-1264579	-	94,517
RTG: Coding Theory Cryptography and Number Theory	47.RD	1547399	-	197,383
Scalable Intelligent Power Monitoring and Optimal Control of Distributed Energy Systems Using Adaptive Critics	47.RD	ECCS-1308192	-	33,626
Scholars Awards: The Schlick Zirkel	47.RD	1456582	-	54,692
Selenium Antioxidant Mechanisms: Metal Binding vs. Reactive Oxygen Species Scavenging	47.RD	CHE-1213912	-	19,216
Self-Healing Photochromic Polymeric Coatings	47.RD	CMMI-1332964	-	167,328
SHB: Type II (INT): Collaborative Research: Creating Learning Systems with Mobile Technology to Improve Perioperative Services	47.RD	IIS-1237077	-	116,914
SHF: Medium: Collaborative Research: Specification and Mathematics Engineering for the Verified Software End-Game	47.RD	CCF-1161916	-	77,252
Simulation-Based Design of Polymer Nanocomposites for Structural Applications	47.RD	1563435	-	74,605
SNM: Defect-Engineered Nanocarbons for Electrochemical Energy Storage	47.RD	CMMI-1246800	83,353	93,742
Southeastern Number Theory Meetings	47.RD	1502293	-	1,357
Spider Orb-Web Inspired Cognitive Fault-Tolerant Fiber Optic Sensor Network for SHM Under Harsh Conditions	47.RD	CMMI-1360664	-	30,183
SusChEM: Sustainable Chemistry from Combined Inorganic and Organic Waste Precursors	47.RD	1708844	-	9,712
Topics in Algebraic Geometry Codes	47.RD	DMS-1403062	-	77,573
Transforming Robust Design Concept into a Novel Geotechnical Design Tool	47.RD	CMMI-1200117	-	15,226
TUES Type 1: Robots in Business and Society - A Hands-On Learning Experience	47.RD	DUE-1245250	-	80,173
TUES: Collaborate Research: Integrating Sustainability Grand Challenges and Experiential Learning into Engineering Curricula	47.RD	1620922	4,102	14,192
TWC: Medium: Collaborative: Studying Journalists to Identify Requirements for Usable Secure and Trustworthy Communication	47.RD	1513875	-	139,493
Ultrasonic Particle Scrubbing With Drops	47.RD	1336632	-	3,561
Understanding and Manipulating Charge and Entropy Flows in Layered Structured Transition Metal Dichalcogenides by and for Thermoelectricity: A Multi-Scale Materials Chem. Approach	47.RD	DMR-1307740	-	122,350
UNS: Formation and Toxicity of Disinfection Byproducts in Desalinated Waters	47.RD	1511051	29,657	97,678
UNS: High-performance Membranes for Engineered Osmosis	47.RD	1510790	-	125,562
US Ignite: Track 1: Enabling Connected Vehicle Applications through Advanced Network Technology	47.RD	1531127	-	157,246
Using Ultra Violet Light to Produce Layered Fiber Reinforced Materials Derived from Biological Sources	47.RD	1537756	-	100,359
VRFE: Virtual Reality Field Experiences	47.RD	1644552	-	49,999
Workshop: Summer School on Methods for Case Protocol and Controlled Experiment Research on Design and Systems Engineering; Clemson South Carolina; May 14-26 2017	47.RD	1740217	-	38,403
Pass-through programs from: Carnegie Mellon University				

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>National Science Foundation, continued</b>				
Pass-through programs from, continued:				
Learning to See Seeing to Learn: A Sociotechnical System Supporting Taxonomic Identification Activities in Volunteer-Based Water Quality Biomonitoring	47.RD	1122371-358369	-	41,229
Learning to See Seeing to Learn: A Sociotechnical System Supporting Taxonomic Identification Activities in Volunteer-Based Water Quality Biomonitoring	47.RD	1122372-373003	-	11,114
Clemson University Research Foundation				
CAREER: Control of Processes Actuated with Mobile Radiant Sources	47.RD	CMMI-1055254	-	17,393
CAREER: Model-Based Control of Machining Processes and Scalability for Manufacturing System Control.	47.RD	CMMI-0954318	-	(2,598)
Synthesis-Microstructure-Performance Relations in Oxide Ceramic Scintillators	47.RD	DMR-1207080	-	42,323
Cornell University				
SCH: EXP: Home+ An Intelligent and Interoperable Suite of Robotic Furnishings Learning and Evolving with Their Users	47.RD	81402.10758	419	5,236
Florida Atlantic University				
MRI - Development of the Intelligent River A Basin-Scale Monitoring Instrument	47.RD	CRJ85	-	327,582
GATS Incorporated				
Life-Cycle of the Quasi Two-Day Wave in the Southern Hemisphere	47.RD	GATS_SC_160003	-	4,915
Livingstone College				
Advancing Interest and Motivation (AIM) for STEM Careers	47.RD	NSF HBCU-UP	-	54,908
Medical University of South Carolina				
RII Track-2 FEC: Bridging Cognitive Science and Neuroscience Using Innovative Imaging Technologies (Year 1)	47.RD	MUSC16-054-8B357	-	8,161
Missouri University of Science and Technology				
Nano Ferrous Particles Dispersed on Optical Fiber Sensors for Distributed Corrosion Assessment of Civil Infrastructures	47.RD	00037853-01	-	38,277
Northern Arizona University				
Digitization TCN: Lepidoptera of North America Network: Documenting Diversity in the Largest Clade of Herbivores	47.RD	1003017.02	-	1,226
Northwestern University				
DMREF: Simulation-Driven Design of Highly Efficient MOF/ Nanoparticle Hybrid Catalyst Materials	47.RD	SP0023246-PROJ0006614	-	70,181
Prasidiux				
SBIR Phase II: Development of Polymer Gel-Based Indicators to Monitor the Exposure of Pharmaceuticals to Harmful Temperatures	47.RD	PSXSUB003	-	39,671
Purdue University				
Expanding Access to and Participation in the Multiple-Institution Database for Investigating Engineering Longitudinal Development	47.RD	4101-77545	-	10,706
South Carolina State University				
A Partnership in Observational and Computational Astronomy II (POCA II)	47.RD	15-586021-BAPS-CU-SC	-	9,720
Louis Stokes Alliance for Minority Participation Program (SCAMP)	47.RD	15(2)-581051-SCAMP-CU-SC	-	60,105
Louis Stokes Alliance for Minority Participation Program (SCAMP)	47.RD	15-581051-SCAMP-CU-SC	-	35,674
Tetramer Technologies				
Commercialization of Innovative Low Refractive Index High Temperature Perfluorocyclobutyl Polymers	47.RD	CU-TETRAMER NSF-006	-	19,711
University of California Davis				
Computational Infrastructure for Geodynamics	47.RD	201504240-01	-	28,055
University of Florida				
NSF INSPIRE: Virtual Environment Interactions: Exploring Embodied Learning in Support of Computational Thinking	47.RD	UFDSP00010994	-	82,571
University of San Diego				
Collaborative Research: Military Veteran Students' Pathways in Engineering Education	47.RD	140065-U2015-001	-	32,410
University of South Carolina				
The South Carolina Project for Organ Biofabrication - Undergraduate Research Opportunities for Women in Biomolecular Engineering	47.RD	16-3100/PO#2000025995 (22410-ZH16)	-	5,000
University of Texas Austin				
Campus Bridging for Stampede	47.RD	UTA13-000068	-	58,029
Sequencing a Reference-grade Genome of the Domesticated Allotetraploid Cotton	47.RD	UTA15-000467 (1444552)	-	138,210
University of Utah				
CloudLab: Flexible Scientific Infrastructure to Support Fundamental Advances in Cloud Architectures and Applications	47.RD	10034358-CLEM	-	164,112

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>National Science Foundation, continued</b>				
Pass-through programs from, continued:				
VentureWell				
Pathways to Innovation Program	47.RD	None	-	1,399
Washington State University				
CIF21 DIBBS Tripal Gateway: Platform for Next Generation Data Analysis and Sharing	47.RD	123507_G003405	-	36,757
<b>Total National Science Foundation</b>			<u>2,404,931</u>	<u>18,937,842</u>
<b>Department of Veterans Affairs</b>				
Grants for Adaptive Sports Programs for Disabled Veterans and Disabled Members of the Armed Forces				
	64.RD	2017-ASG-22	-	17,793
Targeted Delivery of Antioxidant Drugs Following Cerebral Ischemic Injury	64.RD	PO# 673-D75006	-	27,449
<b>Total Department of Veterans Affairs</b>			<u>-</u>	<u>45,242</u>
<b>Environmental Protection Agency</b>				
Dendritic Polymers as Biocompatible Dispersants for Oil Spill Remediation				
	66.RD	RD-83518201	5,012	7,387
Forest Watershed Mgmt. Practices & DW Quality	66.RD	CR-83586401	17,694	266,239
Partnerships for Sustainability: P2 Education and Assessment	66.RD	NP00D22514	-	1,500
Pass-through programs from:				
North Carolina State University				
Achieving New Milestones For Stormwater Runoff Reductions in Black Creek Watershed	66.RD	2012-2709-01	-	2,085
<b>Total Environmental Protection Agency</b>			<u>22,706</u>	<u>277,211</u>
<b>Nuclear Regulatory Commission</b>				
Clemson University Nuclear Engineering and Radiological Sciences Scholarship Program				
	77.RD	NRC-HQ-84-14-G-0021	-	59,185
Probabilistic Risk Assessment Faculty Development in Nuclear Engineering and Science Program at Clemson University	77.RD	NRC-HQ-13-G-38-0002	-	139,176
US Nuclear Regulatory Commission Fellowship Grant at Clemson University	77.RD	NRC-HQ-12-G-38-0016	-	131,453
<b>Total Nuclear Regulatory Commission</b>			<u>-</u>	<u>329,814</u>
<b>Department of Energy</b>				
A New Paradigm for Understanding Multi Phase Ceramic Waste Form Performance				
	81.RD	DE-NE0008260	98,959	214,683
All-Digital Plug and Play Passive RFID Sensors for Energy Efficient Building Control	81.RD	DE-EE0007683	60,794	163,330
Alternative Sample Loading Preparation for Thermal Ionization Mass Spectrometry	81.RD	DE-NA0001735	-	65,198
Breeding High Yielding Bioenergy Sorghum for the New Bioenergy Belt	81.RD	DE-AR0000595	1,656,481	2,230,843
Characterizing and Interpreting the In Situ Strain Tensor During CO2 Injection				
	81.RD	DE-FE0023313	144,424	503,555
Energize: An Interactive Evaluation Tool for Engaging the General Public with Energy Decision Making	81.RD	DE-NE0008568	-	62,762
Energy Efficiency for the Growing South Carolina Manufacturing Industries	81.RD	DE-EE0007727	-	86,720
Examination of Actinide Chemistry at Solid-Water Interfaces to Support Advanced Actinide Separations	81.RD	DE-SC0010355	-	138,524
First-Principles Calculation of Vibrational Mode in Complex Materials	81.RD	DE-SC0008487	-	139,099
Fully Integrated High Speed Megawatt Class Motor and High Frequency Variable Speed Drive System	81.RD	DE-EE0007254	893,178	1,308,913
Functionally Designed Ultra-Lightweight Carbon Fiber Reinforced Thermoplastic Composites Door Assembly	81.RD	DE-EE0007293	150,159	497,475
Lower Length Scale Characterization and Validation of Formation and Stability of Helium Bubbles in Nano-structured Ferritic Alloys Under Irradiation	81.RD	DE-NE0000728	-	93,580
Novel High Temperature and Radiation Resistant Infrared Glasses and Optical Fibers for Sensing in Advanced Small Modular Reactors	81.RD	DE-NE0000727	82,303	147,773
Radionuclide Waste Disposal: Development of Multi-scale Experimental and Modeling Capabilities	81.RD	DE-SC0012530	473,336	1,678,374
Robust Extractive Scintillating Resin and Adsorptive Membranes for Plutonium Isotopic Analyses of Aqueous Media	81.RD	DE-NA0002920	-	229,849
Robust in Situ Strain Measurements to Monitor Carbon Dioxide (CO2) Storage	81.RD	DE-FE0028292	-	12,838

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Energy, continued</b>				
Sampling Rare Events In Aqueous Systems Using Molecular Simulations	81.RD	DE-SC0015448	-	75,212
Synthesis and Single Crystals of Refractory Oxides of Lanthanides and Thorium	81.RD	DE-SC0014271	-	168,757
Pass-through programs from:				
Alliance for Sustainable Energy LLC				
Understanding the Role of Short-Term Energy Storage and				
Large Motor Loads for Active Power Controls by Wind Power	81.RD	XDJ-6-62584-01	-	58,303
Battelle				
Literature Review - Impact of Light on Health Outcomes	81.RD	267291	-	750
R&D of the Liquid Sampling Atmospheric Pressure Glow Discharge				
(LS-APGD) with Respect to Uranium Sensitivity and Isotope Ratio	81.RD	302206	-	43,023
Accuracy				
Battelle Memorial Institute				
Round Robin Testing of Alkali-Silica Reactivity of Aggregates using		488440 // PO# US001-		
Autoclaving Techniques	81.RD	0000488440	-	5,268
Clemson University Research Foundation				
Development of a Self-Consistent Model of Plutonium Sorption:				
Quantification of Sorption Enthalpy and Ligand-Promoted Dissolution	81.RD	DE-SC0004883	18,565	28,284
Fluoropolymers Electrolytes Composites and Electrodes	81.RD	DE-FG02-05ER15718	-	24,657
GATE Center of Excellence in Sustainable Vehicle Systems	81.RD	DE-EE0005571	-	66,794
Donald Danforth Plant Science Center				
A Reference Phenotyping System for Energy Sorghum	81.RD	22815-C	-	101,565
General Electric Company				
Joining of SiCf/SiC Composites Using Polymer Derived Ceramics	81.RD	740083405 and 740099997	-	132,409
Lawrence Livermore National Laboratory				
Stabilization of Pu Complexes on Mineral Colloids by Natural				
Organic Matter	81.RD	B621273	-	88,416
Stabilization of Pu Surface Complexes on Mineral Colloids by				
Natural Organic Matter	81.RD	B616830	-	52,126
Los Alamos National Laboratory				
Develop Improve and Maintain the Parallel Fine-Grained Soft				
Error Fault Injector	81.RD	406247	-	53,365
Evaluate Develop and Implement Robust and Scalable Approaches				
for Computing both Explicit and Compact Finite Differences for				
Computational Fluid Dynamics (CFD)	81.RD	325755 // BOA# 284874	-	34,961
Missouri University of Science and Technology				
Additive Manufacture of Smart Parts with Embedded Sensors for				
In-Situ Monitoring in Advanced Energy Systems	81.RD	00042083-01	-	170,630
MWH Americas Incorporated				
Laboratory Evaluation of Biostimulation to Treat Chlorinated Ethenes				
in the Chatsworth Formation Santa Susana Field Laboratory Ventura		S10509530-105201-OM //		
Co. CA	81.RD	Job# 10509530.210401	3,429	5,144
National Technology & Engineering Solutions of Sandia				
NaSOW p.r. 1886058	81.RD	1678873	-	22,190
Savannah River Nuclear Solutions				
CAPER GMLC Southeast Regional Partnership Support Activities				
(NSCB00003)	81.RD	NSCB00003//BOA#0521//P O#277771	1,542	4,633
Evaluating Thermal Heating with Elemental Mercury (NSCB00006)	81.RD	NSCB00006//BOA#0521//P O#292699	-	21,783
Improving Distribution Transformer Efficiency and Lifetime through				
Product Selection and Dynamic Load Control Support Activities				
(NSCB00004)	81.RD	NSCB00004//BOA#0521//P O#281021	-	4,671
LDRD Power Line Noise Study	81.RD	0000262949	-	80,195
Solid State Power Substation Roadmap	81.RD	NSCB00005//BOA# 521//PO#289554	49,503	52,003
SRNL External Review Committee (ERC)	81.RD	PO# 313527 // NSCB00010 // BOA # 521	-	13,488
SRNL External Review of Select Competencies: Environmental				
Science and Engineering Chemistry and Radiochemistry Materials				
Science and Engineering and Separations Science and Engineering	81.RD	BOA # 0521 NSCB00008//BOA#0521//P	33,979	92,188
Technetium Extraction/Retention Studies (NSCB00008)	81.RD	O#303764 PO 317010 // TOA#	-	10,446
Tritium Supply Chain Modeling NSCB00011	81.RD	NSCB00011 // BOA 521	-	5,013
SCUREF				
Advanced Microanalytical Measurements	81.RD	B139023	-	19,104
Ceramic Materials Synthesis and Characterization	81.RD	B139015	-	9,805
Fabrication and Characterization of Graphene Membranes	81.RD	B139021	-	8,162

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Energy, continued</b>				
Pass-through programs from, continued:				
MDOA and TEA Resins Development	81.RD	B139025	-	12,497
On-Site Two-Day Workshop	81.RD	B139028	-	708
Radiation Detection Research and Development in Accordance with SOW No. G-SOW-A-01422 REV. 0	81.RD	B139019	-	(15)
Solid Waste Encapsulation-Microscopy	81.RD	B139033	-	488
SRR Technical Support Provided by Clemson University	81.RD	SRRA001	-	78,611
Synthesize Characterize and Test Anion Exchange Membranes	81.RD	B139030 // SCB00030	-	9,668
Tritium Supply Chain Modeling & Analysis	81.RD	B139020	-	123,697
Water Isotope Separation Testing	81.RD	B139024	-	28,391
United States Automotive Materials Partnership LLC				
Development of Advanced Steel for Lightweight Vehicles	81.RD	13-2825-AMP	-	73,351
University of Cincinnati				
Robust Metal-Ceramic Coaxial Cable Sensors for Distributed Temperature Monitoring in Fossil Energy Power Systems	81.RD	009170-002 PO#4500082057	-	137,819
University of Minnesota				
Energy Frontier Research Center for Inorganometallic Catalyst Design	81.RD	A004527501	-	106,657
University of Nebraska - Lincoln				
Systems Analysis of the Physiological and Molecular Mechanisms of Sorghum Nutrient Use Efficiency Water Use Efficiency and Interactions with the Soil Microbiome	81.RD	25-1215-0123-006	-	99,603
University of South Carolina				
Center for Hierarchical Waste Form Materials (CHWM)	81.RD	17-3256/USC#13020- FC78/PO#2000030148	-	40,264
UT-Battelle LLC				
Characterization of novel polymer materials with AFM	81.RD	4000153152	-	17,512
MINOS Data Analytics & Fusion Advisory	81.RD	4000153773	-	103
Robust Network Fusion Algorithms for Detection and Localization of Radiation Sources	81.RD	4000127400 / Vendor # 0000062498	-	99,745
<b>Total Department of Energy</b>			<b>3,666,652</b>	<b>9,855,960</b>
<b>Department of Education</b>				
GAANN: Model Validation Analytics in Support of High Consequence Decision Making	84.RD	P200A150310	-	151,917
Graduate Fellowship in Electrical & Computer Engineering	84.RD	P200A150107	-	266,868
Graduate Training in Engineering and Managing Resilient and Sustainable Civil Infrastructure	84.RD	P200A120222-14	-	69,985
Pass-through programs from:				
Public Schools of North Carolina				
Online Dissemination through Educate Workforce Platform for NC Department of Public Instruction	84.RD	NC10236360	-	22,000
South Carolina Commission on Higher Education				
ITQ - Exploring the Mathematics of Genetics	84.RD	None	-	23,448
ITQ - Understanding Geometry by Design	84.RD	None	12,355	91,701
Project HOMs: Hands-On Making Science	84.RD	None	-	11,771
Project RES: Reform-Based Environmental Science - ITQ FY 2015-16	84.RD	ITQ 2015-16	-	27,350
<b>Total Department of Education</b>			<b>12,355</b>	<b>665,040</b>
<b>Department of Health and Human Services</b>				
A Multi-Level Cohort-Sequential Study of Rural Adolescent Dating Violence Victimization and Perpetration	93.RD	5R01HD067505-03	-	39,636
Academy of Behavioral Medicine Research Annual Conference	93.RD	1R13CA216984-01	-	2,722
BloodSurf 2016: Blood-Biomaterial Interactions	93.RD	1R13HL132513-01	-	625
CanSim: A Novel Simulator for Training Cannulation Skills in Dialysis Care	93.RD	1K01DK111767-01	-	105,913
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20GM103444-08	247,097	821,998
Center of Biomaterials for Tissue Regeneration (CBTR) - A Simionescu	93.RD	5P20GM103444-08	-	156,840
Center of Biomaterials for Tissue Regeneration (CBTR) - Y. Mei	93.RD	5P20GM103444-08	-	205,492
Center of Biomaterials for Tissue Regeneration (CBTR) (D Simionescu Z Gao & T Bruce)	93.RD	5P20GM103444-08	-	284,291
Center of Biomaterials for Tissue Regeneration (CBTR) (J Anker & J Desjardins)	93.RD	5P20GM103444-08	-	63,859
Center of Biomaterials for Tissue Regeneration (CBTR) (J Mercuri)	93.RD	5P20GM103444-08	-	179,433
Center of Biomaterials for Tissue Regeneration (CBTR) (J Nagatomi & C Webb)	93.RD	5P20GM103444-08	-	321,696
Center of Biomaterials for Tissue Regeneration (CBTR) (JS Lee)	93.RD	5P20GM103444-08	-	169,261
Center of Biomaterials for Tissue Regeneration (CBTR)(A. Foley)	93.RD	5P20GM103444-08	-	148,150

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Health and Human Services, continued</b>				
COBRE - EPIC Cheryl Ingram-Smith	93.RD	1P20GM109094-01A1	-	243,193
COBRE - EPIC Christopher Saski	93.RD	1P20GM109094-01A1	-	353,279
COBRE - EPIC James Morris	93.RD	5P20GM109094-02	-	320,908
COBRE - EPIC Kimberly Paul	93.RD	5P20GM109094-02	-	215,664
COBRE - EPIC Lukasz Kozubowski	93.RD	5P20GM109094-02	-	196,097
COBRE - EPIC Meredith Morris	93.RD	5P20GM109094-02	-	272,966
COBRE - EPIC Terry Bruce	93.RD	5P20GM109094-02	-	147,817
COBRE: Eukaryotic Pathogens Innovation Center (EPIC)	93.RD	5P20GM109094-02	-	232,884
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) Joshua Alper	93.RD	5P20GM109094-02	-	23,345
Creatine: A Novel Modulator of GABA Inhibitory Synapses	93.RD	1R03HD088942-01	-	48,010
Detecting and Monitoring Implant Infection Using X-ray Excited Luminescence Chemical Imaging (XELCI)	93.RD	1R01AR070305-01	-	265,584
Developing Luminescent Tension-indicating Orthopedic Screw	93.RD	1R21EB019709-01A1	-	245,185
Embryonic Arsenic Exposure Impacts Satellite Cells	93.RD	5R03ES023930-02	-	68,234
Entamoeba Metabolism: The Role of Acetate Kinase and ADP-Forming Acetyl-CoA Synthetase	93.RD	1R15GM114759-01A1	-	79,081
Functional Tissue Engineering and Regeneration of the Aortic Root	93.RD	1R56HL130950-01	73,005	153,881
Identification of Kinetoplastid Parasite Glucose Uptake and Subcellular Localization	93.RD	1R21AI127575-01	51,968	64,968
Inhibition of Human Islet Amyloid Polypeptide Aggregation	93.RD	1R35GM119691-01	-	220,511
Integrating Biomechanics & Cell Biology to Understand TMJ Pathology	93.RD	4R01DE021134-05	177,375	349,734
Label Free RF Imaging of Cell Membrane Heterogeneity in Liquid	93.RD	4K25GM100480-05	16,610	109,295
Mechanisms of Fluconazole-Induced Aneuploidy in Cryptococcus Neoformans	93.RD	1R15 AI119801-01	-	75,975
Mechanisms of Long-term Arsenic Exposure on Stem Cells	93.RD	1R15ES027651-01	-	31,828
Microfabricated Coculture Model: Myocyte Rescue by TNT-Transfer Mitochondria	93.RD	5R01HL124782-03	160,941	356,641
New Enzymes for DNA Demethylation	93.RD	1R15GM121997-01	-	1,314
New Generation DelPhi: Large Systems and Beyond Electrostatics	93.RD	2R01GM093937-06A1	14,377	404,549
Predicting the Toxicity of Nanomaterials by a Transforming Protein Corona	93.RD	1R15ES022766-01A1	60,872	139,753
Probe Identification by HTS for Plasmodium Falciparum Hexokinase	93.RD	1R03HD081723-01	9,427	41,586
Realizing Improved Patient Care Through Human-Centered Design in the OR	93.RD	5P30HS024380-02	128,462	951,775
Reducing Disparities in Birth Outcomes: A Randomized Controlled Trial on Centering Pregnancy	93.RD	5R01-HD82311-02	399,780	628,876
Role of Mei5-Sae3 in Meiotic Homologous Recombination	93.RD	5R01GM098510-05	-	87,034
SLC7A5-MTOR Regulation of Neural Development	93.RD	1R15NS096562-01A1	-	89,091
Stress Induced Control of Protein Translation in Entamoeba Histolytica	93.RD	5R03AI107950-02	-	51,161
The Cell Biology of Eukaryotic Pathogens Symposium	93.RD	1R13AI129383-01	-	4,614
The Role of CAR and PXR in Gender Predominant P450 Expression and Induction	93.RD	2R15ES017321-02	-	3,145
The Role of CAR and PXR in Gender Predominant P450 Expression and Induction	93.RD	2R15ES017321-03	-	43,110
Theranostic Approach to Treat Abdominal Aortic Aneurysms	93.RD	1R01HL133662-01A1	-	56,544
Translational Control of Encystation in the Entamoebae	93.RD	5R21AI08287-02	18,984	50,821
Undergraduate Education and Device Innovation Through Clinical and Translational	93.RD	1R25EB016589-01A1	-	40,713
Using Context to Validate and Improve Wrist-Tracking	93.RD	5R01HL118181-03	102,404	474,123
Pass-through programs from:				
Bite Technologies LLC				
Assessing the Bite Counter as a Tool for Food Intake Monitoring: Phase II	93.RD	CU-02	-	22,190
Brigham Young University				
pH and Glucose Sensing In Trypanosoma Brucei Glycosomes	93.RD	15-0462 R0102071	-	67,706
Duke University				
Inflammasomes Mediate Inflammations in Bladder Outlet Obstruction	93.RD	2034859	-	2,396
Greenville Health System				
Neonatal Abstinence Syndrome: Analysis of Cost Safety and Efficacy of a Palliative Approach to Treating Narcotic-Dependent Newborns	93.RD	A20161164A-01GHS // G001216	-	116,763
Greenwood Genetics Center				
Rett Syndrome Hand Stereotypies Data Analysis Study	93.RD	82561-03	-	4,697
Medical University of South Carolina				
Impact of Integrated HIV/NCD Screening on HIV Testing Uptake and Engagement in HIV Care: an RCT in Kisarawe Tanzania	93.RD	MUSC16-104-8C312	-	53,041
Methods for Retrospective Multi-Site Research	93.RD	MUSC12-046	-	58,907
MUSC Center for Oral Health Research	93.RD	MUSC15-093	-	11,184
Physical Activity Interventions for Leg Ulcer Patients	93.RD	MUSC15-041	-	10,652
Missouri University of Science and Technology				
Development of a Novel Multi-functional Single Cell Analyzer	93.RD	00044240-01	-	299
North Carolina Central University				
Development of New Photo-Activated Antibacterial Agents	93.RD	P0069772	-	61,070
NUBAD LLC				
A Rapid Assay for RNA Targeted Drugs	93.RD	2013000548; F-Neo II (5R42GM097917-03)	-	153,562
Aminoglycosides with Reduced Ototoxicity	93.RD	CLEM-004	-	26,780



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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Health and Human Services, continued</b>				
Pass-through programs from, continued:				
NUBAD LLC				
Development of Peptide Antibiotic Nucleic Acids	93.RD	Prime # 5R41A114114-02	-	21,483
Screening the Ribosome for new Target Sites	93.RD	CLEM-003	-	85,690
Rutgers The State University of New Jersey				
Multiscale Molecular Modeling as Guide for Bioactive Polymer Design Optimization	93.RD	5945-439828-PO# 444430	-	93,206
South Carolina Department of Health & Human Services				
Quality Assurance Services for the Bureau of Long Term Care Services (FFP Federal)	93.RD	A201611999A (FFP)	-	(234)
Quality Assurance Services for the Bureau of Long Term Care Services (FFP Federal)	93.RD	A20211999A (FFP) - FY17	-	529,633
South Carolina Department of Social Services				
ICSS Employment and Training	93.RD	4400011567	-	1,793,498
ICSS Employment and Training Institute	93.RD	4400011567 Training	-	384,328
The University of Texas Health Science Center				
Structure and Function of NMDA Receptors	93.RD	0011279B	-	32,529
University of Colorado - Denver				
Mechanisms of Mast Cell Directed Carbon Nanotube Toxicity	93.RD	FY16.714.002	-	123,994
Nanoparticle Protein Corona Structural Changes and Immunoreactivity	93.RD	FY15.714.001/2-5-55932	-	61
University of Florida				
Probiotics That Moderate PH and Antagonize Pathogens to Promote Oral Health	93.RD	UFDSP00011201 00125985	-	45,233
University of Nebraska - Lincoln				
Group Testing for Infectious Disease Detection: Multiplex Assays and Back End Screening	93.RD	24-0548-0008-002	-	62,478
University of South Carolina				
Increasing Dietary Self-Monitoring and Weight Loss in an mHealth Intervention	93.RD	15-2826 (11570-FB22)/PO#92168	-	17,515
South Carolina IDeA Network of Biomedical Research Excellence (SC INBRE)		22050-Z188	-	28,710
South Carolina IDeA Network of Biomedical Research Excellence (SC INBRE)	93.RD	22050-Z217	-	199,705
University of Texas Austin				
A Novel Approach for the Design and Development of Valvular Replacement Biomaterials	93.RD	UTA12-000570	-	41,436
University of Texas El Paso				
BUILDing Scholars-Research Enrichment Core	93.RD	226141170-04	-	262
BUILDing Scholars-Research Enrichment Core	93.RD	226141198E (formerly 226141170-04)	-	31,521
Virginia Polytechnic Institute				
DPM Research: Monitoring Responses to Ventilation and Control by Water Sprays and Capacity Building for Mine Ventilation Expertise	93.RD	431827-19244	-	17,954
Widmeyer Communications				
Phase V Option Year III (previously Option Year II) of HRSA's Bullying Prevention Campaign	93.RD	None	-	16,092
Corporation for National and Community Service				
<b>Total Department of Health and Human Services</b>			<u>1,461,302</u>	<u>13,757,546</u>
<b>Corporation for National and Community Service</b>				
Pass-through programs from:				
Furman University				
Implementation Evaluation for Greenville Health System School Based Health Centers	94.RD	None	-	43,626
<b>Total Corporation for National and Community Service</b>			<u>-</u>	<u>43,626</u>
<b>Department of Homeland Security</b>				
Pass-through programs from:				
South Carolina Emergency Management Division				
Public Assistance Funding Agreement - 4241 Severe Storms and Flooding (Baruch Institute)	97.RD	F#840 UCEAT07	-	34,685
University of South Carolina				
Coupling Experiments and Atomistic Modeling to Characterize Actinide Oxides in Support of Nuclear Forensics	97.RD	14-2646/17110 FA45 PO#'s 82368 2000017843	-	68,087
<b>Total Department of Homeland Security</b>			<u>-</u>	<u>102,772</u>
<b>Total Research and Development Cluster</b>			<u>9,942,387</u>	<u>70,798,465</u>

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<b>RESEARCH AND DEVELOPMENT CLUSTER, Continued</b>				
<b>Department of Education</b>				
<b>Student Financial Assistance Cluster</b>				
Federal Supplemental Educational Opportunity Grants	84.007	Unknown	-	403,323
Federal Work Study Program	84.033	Unknown	-	1,003,967
Federal Work Study Program - Federal Job Location and Development	84.033	Unknown	-	60,000
Federal Perkins Loan Program Federal Capital Contributions	84.038	Unknown	-	9,105,475
Federal Pell Grant Program	84.063	Unknown	-	13,542,907
Federal Direct Loans	84.268	Unknown	-	100,096,337
<b>Total Student Financial Assistance Cluster</b>			-	124,212,009
<b>Special Education Cluster</b>				
Pass-through programs from:				
South Carolina Department of Education				
Project CREATE: Center for ReEducation and Advancement of Teachers in Special Education	84.027	16 Project CREATE-01 H63010100915	-	159
SC CREATE: Centers for the Re-Education and Advancement of Teachers in Special Education and Related Services Personnel	84.027	SC CREATE	-	20,433
South Carolina Educational Interpreter Center	84.027	Funds Reservation	-	145,914
<b>Total Special Education Cluster</b>			-	166,506
<b>Total Department of Education</b>			-	124,378,515
<b>Department of Agriculture</b>				
<b>SNAP Cluster</b>				
Pass-through programs from:				
South Carolina Department of Social Services				
SC DSS SNAP Outreach Grant	10.561	4400010995	106,188	124,899
SNAP-ED Nutrition Education and Obesity Prevention (CATCH - Coordinated Approach to Child Health)	10.561	4400014598	-	94,348
SNAP-ED Nutrition Education and Obesity Prevention Grant	10.561	4400010959	-	150,367
SNAP-ED Nutrition Education and Obesity Prevention Grant	10.561	4400014563	-	92,057
<b>Total SNAP Cluster</b>			106,188	461,671
<b>Total Department of Agriculture</b>			106,188	461,671
<b>Department of Commerce</b>				
<b>Economic Development Cluster</b>				
United States Department of Commerce EDA Grant for the CURI Graduate Education Center	11.300	Unknown	-	4,017,395
<b>Total Economic Development Cluster</b>			-	4,017,395
<b>Total Department of Commerce</b>			-	4,017,395
<b>Department of Housing and Urban Development</b>				
<b>Community Development Block Grants Cluster</b>				
Pass-through programs from:				
City of Columbia				
Ice House Entrepreneurship Program	14.218	2015-CDBG-03-1184	-	(154)
<b>Total Community Development Block Grants Cluster</b>			-	(154)
<b>Total Department of Housing and Urban Development</b>			-	(154)

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<b>Department of Transportation</b>				
<b>Highway Planning and Construction Cluster</b>				
Pass-through programs from:				
South Carolina Department of Transportation				
State Work Zone Safety Training Program	20.205	CBSA-002	-	288,873
Transportation Technology Transfer Service (T3S)	20.205	1780; Proj No.	-	172,745
Transportation Technology Transfer Service (T3S)	20.205	1865; Proj No.	-	254,215
<b>Total Highway Planning and Construction Cluster</b>			-	<b>715,833</b>
<b>Total Department of Transportation</b>			-	<b>715,833</b>
<b>OTHER PROGRAMS</b>				
<b>Department of Agriculture</b>				
USDA Forest Service: Francis Marion and Sumter National Forests Participating Agreement with Clemson University and College of Charleston	10.U01	13-PA-11081209-007	-	600
Animal Health Monitoring and Surveillance (Umbrella) Program	10.025	16-9745-1276-CA	-	261,200
Animal Health Technical Services (AHTS) Program (Animal Disease Traceability)	10.025	16-9745-1175-CA	-	94,715
Building Screening Capacity for Plant Pathogenic Phytoplasmas for the CAPS Program	10.025	15-8130-0242-CA	-	532
CAPS - Tier 1	10.025	AP17PPQFO000C017	-	33,690
CAPS - Pests of National Concern	10.025	AP17PPQFO000C017	-	13,166
CAPS - Tier 1	10.025	16-8245-0380-CA	-	41,178
CAPS- Pests of National Concern	10.025	16-8245-0380-CA	-	19,720
District 2 South Carolina FY17 Trace (Animal Disease Traceability)	10.025	AP17VSSPRS00C007	-	1,681
District 2 South Carolina FY 17 Umbrella (National Surveillance and Response for Animal Health Activities)	10.025	AP17VSSPRS00C030	-	15,758
Farm Bill- Junior Invasives Inspectors	10.025	15-8245-0907-CA	-	10,145
Farm Bill- Phytophthora Ramorum Program Nursery Survey	10.025	15-8245-0794-CA	-	2,436
Forest Pest Outreach/Farm Bill	10.025	16-8245-1006-CA	-	34,010
Imported Fire Ant	10.025	16-8245-0178-CA	-	33,308
Imported Fire Ant	10.025	AP17PPQFO000C060	-	27,529
Junior Invasive Inspectors/Farm Bill Project	10.025	16-8245-0907-CA	-	19,355
Junior Invasive Inspectors/Farm Bill Project	10.025	16-9419-0164-CA	-	31,719
National Animal Health Network Laboratory Management Systems Infrastructure	10.025	16-9419-0095-CA	-	59,138
National Honeybee Survey/Farm Bill	10.025	16-8245-0829-CA	-	10,627
SC FY17 Forest Pest Outreach	10.025	AP17PPQFO000C110	-	276
SC FY17 National Honey Bee Survey Farm	10.025	AP17PPQFO000C179	-	859
SC FY17 Palm Commodity Survey Farm Bill	10.025	AP17PPQFO000C116	-	2,595
SC FY17 Pathways Survey Farm Bill Project	10.025	AP17PPQFO000C109	-	4,547
SC FY17 Witchweed	10.025	AP17PPQFO000C147	-	585
SC NAHLN FY17 Level 2 Member Lab Agreement	10.025	AP17VSNVSL00C003	-	3,295
Stone Fruit Commodity/Farm Bill Project	10.025	16-8245-0891-CA	-	36,939
Walnut Twig/Thousand Cankers Disease Survey/Farm Bill	10.025	16-8245-0964-CA	-	20,159
Witchweed	10.025	16-8245-0028-CA	-	12,637
Improving Energy Efficiency in South Carolina Animal Facilities and Greenhouses: A Partnership for Education Outreach and Technology Adoption	10.054	68-4639-15-0002	66,473	173,789
Bundling of Culinology Nutrition and Packaging in Undergraduate Applied Niche Research	10.217	2012-70003-19969	-	(1)
SC Meat Inspection - Cross Utilization FY2016	10.475	Cross Utilization FY2016	-	95,082
South Carolina Meat-Poultry Inspection - (Compliance)	10.475	BASE16 (12-37-A307)	-	33,435
South Carolina Meat-Poultry Inspection - (In Plant)	10.475	BASE16 (12-37-A307)	-	273,226
South Carolina Meat-Poultry Inspection - PHDCIS	10.475	FAIM16	-	1,202
South Carolina Meat-Poultry Inspection Department - (All Other)	10.475	BASE16 (12-37-A307)	-	53,904
South Carolina Meat-Poultry Inspection Department - (Laboratory)	10.475	BASE16 (12-37-A307)	-	10,680
South Carolina Meat-Poultry Inspection Department- (All Other)	10.475	BASE17 (12-37-A307)	-	177,065
South Carolina Meat-Poultry Inspection Department- (Compliance)	10.475	BASE17 (12-37-A307)	-	89,421
South Carolina Meat-Poultry Inspection Department- (In Plant)	10.475	BASE17 (12-37-A307)	-	807,243
South Carolina Meat-Poultry Inspection Department- (Laboratory)	10.475	BASE17 (12-37-A307)	-	22,326
South Carolina Meat-Poultry Inspection Department- Cross Utilization '17	10.475	Cross Utilization	-	213,724
Clemson Sustainable Community Project	10.500	2013-41520-21027	14,620	99,393
Cooperative Extension Service - Smith Lever	10.500	Unknown	-	6,941,519
Web Based Nutrition Education and Evaluation Reporting System (webNEERS)	10.500	2012-41510-20085	-	206,861
Wood Utilization: Pathway to Healthy Forests and Sustainable Communities	10.500	2015-46401-24241	-	3,262
Biosecurity Policy and Procedure Evaluation Training and Personal Protective Equipment Demonstrations and Distribution	10.902	68-4639-15-514	-	17,669
Demonstrating Habitat Establishment for Pollinators and Other Beneficial Insects	10.902	68-4639-14-0021	-	1,187

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<b>OTHER PROGRAMS, CONTINUED</b>				
<b>Department of Agriculture, continued</b>				
Statewide Demonstration of Improved Irrigation Management to Conserve Water and Enhance Farm Profits Utilizing Real-Time and Site-Specific Weather Information	10.902	69-4639-16-266	-	18,164
Demonstration of Innovative Interseeding Technology for Crop Rotations to Enhance Soil Properties and Reduce Energy Consumption and Pest Occurrence While Optimizing Farm Profits	10.912	69-3A75-12-212	-	84,248
Demonstration of Innovative Water Conservation Technologies to Enhance Resilience to Drought While Optimizing Farm Profits	10.912	69-3A75-13-88	-	31,080
Pass-through programs from:				
Mississippi State University				
Stronger Economies Together (SET)	10.U02	018000.340753.23	-	7,142
South Carolina Department of Social Services				
SNAP-ED Implementation Sesame Street Healthy Habits for Life/Let's Move	10.U03	4400014785	-	77,863
South Carolina Forestry Commission				
Forest Pests Detection and Education and Cogongrass Detection Education and Eradication Project	10.U04	None	-	82,112
University of Georgia				
Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education (SARE) Program	10.215	RD309-129/5054766	-	139
Implement Plan of Work for the Sustainable Agriculture Research and Education (SARE) Program	10.215	RD309-129/S000836	-	16,473
Southern Region SARE Sustainable Agriculture Training Program -PDP- Model State Program Training	10.215	RD309-134/S001193	-	720
Southern Region SARE Sustainable Agriculture Training Program -PDP- Model State Program Training- Assistant	10.215	RD309-134/S001185	-	22,222
Southern SARE- Model State Program - Program Assistant	10.215	RD309-129/S000775	-	3,487
University of Florida				
Southern Plant Diagnostic Network	10.304	UFDSP00010248 (formerly UF12230)	-	2,794
Southern Plant Diagnostics Network	10.304	UFDSP00011536/P0019073	-	25,301
University of Florida				
Southern Training Education Extension Outreach and Technical Assistance Center to Enhance Produce Safety	10.328	UFDSP00011131	-	35,334
Kansas State University				
4-H Military Partnership and Outreach Support Program	10.500	S17121	-	14,237
Air Force/4-H Military Partnership and Outreach and Support	10.500	S16122	-	2,993
Navy/4-H Military Partnership and Outreach and Support	10.500	S16091	-	15,987
South Carolina 4-H Military Clubs	10.500	S16070	-	25,360
North Carolina State University				
Moving the NC Local Food System Toward Sustainability: A Comprehensive Graduate Course in Local Food Systems for Cooperative Extension	10.500	2014-1131-02	-	2,444
Pennsylvania State University				
AMS Grant Writing Workshop and Technical Assistance	10.500	5403-CU-USDA-2628	-	2,376
South Carolina Department of Social Services				
Child and Adult Care Food Program - Online Training Development and Child Care Provider Training	10.560	4400012896	-	141,815
South Carolina Department of Social Services				
Outreach Training for SC Child Care Team Nutrition - Culinary Training	10.574	4400015913	-	10,231
<b>Total Department of Agriculture</b>			<b>81,093</b>	<b>10,635,908</b>
<b>Department of the Interior</b>				
Digitize Archeological Oversized Documents and Photographic Materials	15.945	P16AC01783	-	15,415
Digitize Photographic Materials for Everglades and Biscayne National Parks	15.945	P16AC01406	-	6,693
The Open Parks Grid Project Part III	15.945	P14AC01735	-	858
<b>Total Department of the Interior</b>			-	<b>22,966</b>
<b>Department of Justice</b>				
Pass-through programs from:				
National 4-H Council				
National Mentoring Program Year 5	16.726	2014-OJJDP-NMPV-541	-	947
South Carolina Mentoring Grant - NMP6	16.726	Grant: 07356	-	138,422
South Carolina Mentoring Program - NMP7	16.726	09165; NMP7	-	33,469
<b>Total Department of Justice</b>			-	<b>172,838</b>

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<b>OTHER PROGRAMS, CONTINUED</b>				
<b>Department of Transportation</b>				
Dwight David Eisenhower Transportation Fellowship Program Graduate Fellowship	20.215	DTFH6416G00070	-	4,887
<b>Total Department of Transportation</b>			-	4,887
<b>National Science Foundation</b>				
Collaborative Research: Computational Intelligence Methods for Dynamic Stochastic Optimization of Smart Grid Operation with High Penetration of Renewable Energy	47.041	ECCS-1232070	-	9,625
EAGER: The LIT ROOM - A Networked Suite of Architectural-Robotic Artifacts Embedded in the Library for Advancing Literacy in Children	47.070	IIS-1352992	-	1,309
Clemson University Middle Grades Noyce Phase II Proposal	47.076	1540623	-	45,144
Tigers Teach Noyce Scholarship	47.076	DUE-1136293	-	211,215
<b>Total National Science Foundation</b>			-	267,293
<b>Small Business Administration</b>				
Pass-through programs from: University of South Carolina				
Small Business Development Center - Operating Grant (Federal)	59.037	Federal	-	368,852
Small Business Development Center 2015 Carry Over	59.037	2015 Carry Over	-	30,048
<b>Total Small Business Administration</b>			-	398,900
<b>Environmental Protection Agency</b>				
IPM Mosquito Control	66.204	AA-00D49416	-	32,991
2014-2016 Certification and Training Pesticide Programs Cooperative Agreement	66.700	E-98463814	-	66,504
2014-2016 Special Programs Pesticides	66.700	E-98463714	-	118,193
614.2014-2016 Enforcement Pesticide Programs Cooperative Agreement	66.700	E-98463614	-	107,921
Consolidated Pesticide Compliance Monitoring - Certification and Training	66.700	E-98463817	-	57,125
Consolidated Pesticide Compliance Monitoring - Enforcement	66.700	E-98463617	-	73,170
Consolidated Pesticide Compliance Monitoring - Special Programs	66.700	E-98463717	-	58,317
Fiscal Year 2015 Pollution Prevention Grant Program	66.708	NP00D41716	-	28,697
Pass-through programs from: Commonwealth of Virginia				
Animal Waste Analysis for the Commonwealth of Virginia	66.460	319-2013-P02V	-	9,764
Animal Waste Analysis for the Commonwealth of Virginia	66.460	319-2016-01-PT	-	25,420
<b>Total Environmental Protection Agency</b>			-	578,102
<b>Department of Energy</b>				
Pass-through programs from: Southeastern Coastal Wind Coalition				
Southeast Wind Energy Regional Resource Center	81.U01	None	-	818
<b>Total Department of Energy</b>			-	818
<b>Department of Education</b>				
Exemplary Personnel for Education Research and Teaching in Special Education (ExPERTISE)	84.325	H325D140044	-	239,000
Pass-through programs from: South Carolina Department of Education				
2016-2017 Agriculture Education Professional Development	84.048	None	623	53,373
Agriculture Education Professional Development	84.048	#4000033412 H63010107117 17 CATE	-	10,927
Cherry Grove FFA Camp Caretaker	84.048	Federal-01	-	21,891
Monaview Elementary				
Monaview Magic Initiative	84.287	203214	-	12,876
South Carolina Department of Education				
21st CCLC After-School Learning Centers at Spearman Elementary School and West Pelzer Elementary School	84.287	H63010006916 17 21st CCLC-20 Spearman	31,129	92,291
21st CCLC After-School Program at Cedar Grove Elementary Palmetto Elementary LaFrance Elementary Pendleton Elementary & Townville Elementary	84.287	H63010006916 21st CCLC- 40	-	5,153
21st CCLC After-School Program at Cedar Grove Elementary Palmetto Elementary LaFrance Elementary Pendleton Elementary and Townville Elementary	84.287	H63010006916 17 21st CCLC-40 Cedar Grove	45,621	181,121
21st CCLC After-School Program at Chastain and Liberty Elementary School	84.287	H63010006916 16 21st CCLC-50	-	5,727

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<b>OTHER PROGRAMS, CONTINUED</b>				
<b>Department of Education, continued</b>				
Pass-through programs from, continued:				
21st CCLC After-School Program at Chastain and Liberty Elementary School	84.287	H63010006916 17 21st CCLC-50 Chastain	27,572	107,726
21st CCLC After-School Program at Spearman Elementary School and West Pelzer Elementary School	84.287	H63010006916 21st CCLC-20	-	770
21st Century Community Learning Center Summer Bridge Project - Cedar Grove Elementary School Palmetto Elementary School LaFrance Elementary School Pendleton Elementary School & Townville Elementary School	84.287	H63010006915/16 Summer Bridge-92	-	31,918
21st Century Community Learning Center Summer Bridge Project - Chastain Road and Liberty Elementary School	84.287	H63010006915/16 Summer Bridge-91	-	26,302
21st Century Community Learning Center Summer Bridge Project - Spearman Elementary School and West Pelzer Elementary School	84.287	H63010006915/16 Summer Bridge-90	-	24,339
After-School Program at Cedar Grove Elementary Palmetto Elementary LaFrance Elementary Pendleton Elementary and Townville Elementary	84.287	H63010006916 17 Summer Bridge-92	-	4,140
After-School Program at Chastain and Liberty Elementary School - Summer Bridge Project	84.287	H63010006916 17 Summer Bridge-91	-	5,278
After-School Program at Spearman Elementary School and West Pelzer Elementary School - Summer Bridge Project	84.287	H63010006916 17 Summer Bridge-90	-	3,772
South Carolina Department of Education Learning Mathematics and Science with Technology (LMaST)	84.366	H63010008215 16MSP-01	-	42,773
National Writing Project				
01-SC11-SEED2016; 2016-2017 SEED Advanced Institute to Scale Up the NWP College-Ready Writers Program Grant	84.367	01-SC11-SEED2016 2016 SEED Teacher Leadership Development Grant	-	19,762
2014-2016 SEED Teacher Leadership Development Grant	84.367		-	1,209
2017-2018 NWP CRWP-SEED Professional Development in High-Need Middle or High School Grant with its partner: Carver Middle School	84.367	01-SC11-SEED2017-CRWPPD	-	2,108
South Carolina Commission on Higher Education ITQ - Improving Historical Understanding through Structured Inquiry and Multimedia Exchange	84.367	None	-	42,117
National Writing Project				
2017-2018 i3 Scale-up the College Ready Writers Program (CRWP) Advanced Institute Grant	84.411	01-SC11-2017i3A1 // Prime# U411A160004	-	909
Investing in Innovation (i3): NWP College-Ready Writers Program - Florence 02	84.411	01-SC11-i32013	-	797
Investing in Innovation (i3): NWP College-Ready Writers Program - Greenwood 51	84.411	01-SC11-i32013	-	1,670
Investing in Innovation (i3): NWP College-Ready Writers Program - Union	84.411	01-SC11-i32013	-	903
NWP i3 2015-2016 Professional Development Grant /Delayed Start District: Orangeburg 04 School District	84.411	01-SC11-i3DP2015	-	17,807
NWP i3 CRWP 2015-2016 Professional Development Grant/Delayed Start District: Anderson 03 School District	84.411	01-SC11-i3DP2015	-	11,884
NWP i3 CRWP 2015-2016 Professional Development Grant/Delayed Start District: Bamberg 02 School District	84.411	01-SC11-i3DP2015	-	9,497
The Ohio State University Improving Literacy Outcomes for Beginning Readers with Disabilities	84.411	60046517	-	287,280
<b>Total Department of Education</b>			<b>104,945</b>	<b>1,265,320</b>
<b>Department of Health and Human Services</b>				
Clemson Care: A Campus-Wide Comprehensive Suicide Prevention Strategy	93.243	5U79SM061785-03	-	112,215
Pass-through programs from:				
South Carolina Department of Social Services Resource Foster and Adoptive Home Recruitment Partnership	93.U01	None	-	70,481
South Carolina Department of Agriculture Food Safety Modernization Act (FSMA) Position	93.103	None	-	95,926
University of South Carolina Faith Activity and Nutrition: Dissemination in Underserved Communities - Year 2	93.135	16-2971	-	259
Faith Activity and Nutrition: Dissemination in Underserved Communities - Year 3	93.135	17-3168/PO#2000029191	-	9,494
South Carolina Campaign to Prevent Teen Pregnancy Accelerating Progress: Strengthening Teen Pregnancy Initiatives Among High Need South Carolina Populations (Tier 1A)	93.297	None	-	8,134

**Clemson University, South Carolina**

*Schedule of Expenditures of Federal Awards*

*For the year ending June 30, 2017*

Federal Grantor/Pass-through Grantor/Program Title	Federal CFDA Number	Pass-Through Entity Identifying Number	Passed Through to Subrecipients	Total Federal Expenditures
<b>OTHER PROGRAMS, CONTINUED</b>				
<b>Department of Health and Human Services, continued</b>				
Pass-through programs from, continued:				
South Carolina Department of Health and Environmental Control DHEC Farm-to Retail	93.757	CY-7-785	-	16,441
South Carolina Department of Health and Environmental Control Improving Access to Healthy Food and Reducing Chronic Disease Through Colleton Mobile Farmers Market	93.758	LC-6-507	-	1,226
South Carolina Outdoor Learning Environments	93.758	CY-7-545	-	28,329
Greenville Health System GHS-REACH: A Caregiver Coaching Intervention for High Risk Patient/Caregivers to Extend Dementia Capable Services	93.763	7315-1 /// Grant # G007316	-	30,732
South Carolina Department of Health and Environmental Control State of South Carolina - Child Care Improvements to the Outdoor Learning Environment	93.991	CY-6-522	-	2,979
<b>Total Department of Health and Human Services</b>			-	376,216
<b>Department of Homeland Security</b>				
Pass-through programs from:				
South Carolina Emergency Management Division Public Assistance Funding Agreement - 4241 Severe Storms and Flooding (Sandhill Roads Project)	97.029	F#888 UCCAT02	-	7,088
<b>Total Department of Homeland Security</b>			-	7,088
<b>Total Other Programs</b>			292,226	13,730,336
<b>Total Federal Expenditures</b>			<b>\$ 10,234,613</b>	<b>\$ 214,102,061</b>

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**Clemson University****Clemson, South Carolina*****Notes to the Schedule of Expenditures of Federal Awards******June 30, 2017***

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**Note 1. Basis of Presentation**

The accompanying schedule of expenditures of federal awards (the schedule) includes the federal award activity of Clemson University (the University) and is presented on the accrual basis of accounting. The information in the schedule is presented in accordance with the requirements of Title 2 U.S. Code of Federal Regulations Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Because the Schedule presents only a selected portion of the operations of Clemson University, it is not intended to and does not present the financial position, changes in net position, or cash flows of the University.

**Note 2. Summary of Significant Accounting Policies for Federal Award Expenditures**

Expenditures for student financial aid programs include the federal share of students' Federal Supplemental Educational Opportunity Grant (FSEOG) program grants and Federal Work Study (FWS) program earnings, certain other federal financial aid for students and administrative cost allowances, where applicable.

Expenditures for federal research and development programs are determined using the cost accounting principles and procedures set forth in either OMB Circular A-21, *Cost Principles for Educational Institutions* or in Uniform Guidance, as applicable, wherein certain types of expenditures are not allowable or are limited as to reimbursement.

Negative amounts shown on the Schedule represent adjustments or credits made in the normal course of business to amounts reported as expenditures in prior years.

Expenditures for nonfinancial aid awards include indirect costs, related primarily to facilities operation and maintenance and general, divisional and departmental administrative services, which are allocated to direct cost objectives (including federal awards) based on negotiated formulas commonly referred to as facilities and administrative cost rates. Facilities and administrative costs allocated to such awards for the year ended June 30, 2017, were based on predetermined fixed rates negotiated with the University's cognizant federal agency. The University has elected not to use the 10-percent de minimis indirect cost rate as allowed under the Uniform Guidance.

**Note 3. Federal Perkins Loan Program (CFDA Number 84.038)**

The Federal Perkins Loan Program is administered directly by the University and balances and transactions relating to the program are included in the University's financial statements. Federal expenditures reported on the face of the schedule include loans outstanding at the beginning of the year, loans made during the year, loan cancellations, interest subsidies and administrative expenses. The balance of loans outstanding under the Federal Perkins Loan Program was \$7,436,714 as of June 30, 2017.



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**Clemson University****Clemson, South Carolina***Notes to the Schedule of Expenditures of Federal Awards**June 30, 2017*

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**Note 4. Contingencies**

The University receives funds under various federal grant programs and such awards are to be expended in accordance with the provisions of the various grants. Compliance with the grants is subject to audit by various government agencies which may impose sanctions in the event of non-compliance. Management believes that they have complied with all aspects of the various grant provisions and the results of adjustments, if any, relating to such audits would not have any material financial impact.

**Independent Auditor's Report on Internal Control Over Financial Reporting  
and on Compliance and Other Matters Based on an Audit of  
Financial Statements Performed in Accordance with  
*Government Auditing Standards***

Members of the Board of Trustees  
Clemson University  
Clemson, South Carolina

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the business-type activities and discretely presented component units of Clemson University (the University), as of and for the year ended June 30, 2017, and the related notes to the financial statements, which collectively comprise the University's basic financial statements, and have issued our report thereon dated September 29, 2017. Our report includes a reference to other auditors who audited the financial statements of the Clemson University Research Foundation, the Clemson University Foundation, the Clemson University Land Stewardship Foundation and IPTAY, as described in our report on Clemson University's financial statements. This report does not include the results of other auditors' testing of internal control over financial reporting or compliance and other matters that are reported on separately by those auditors. The financial statements of the Clemson University Foundation and IPTAY were not audited in accordance with *Government Auditing Standards*.

### **Internal Control over Financial Reporting**

In planning and performing our audit of the financial statements, we considered the University's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we do not express an opinion on the effectiveness of the University's internal control.

*A deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

## **Compliance and Other Matters**

As part of obtaining reasonable assurance about whether the University's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

## **Purpose of this Report**

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

A handwritten signature in black ink that reads "Elliott David Decosimo, LLC". The signature is written in a cursive style with a long, sweeping underline.

Greenville, South Carolina  
September 29, 2017



**Independent Auditor's Report on Compliance for  
Each Major Federal Program; Report on Internal Control Over  
Compliance; and Report on the Schedule of Expenditures of  
Federal Awards Required by the Uniform Guidance**

Members of the Board of Trustees  
Clemson University  
Clemson, South Carolina

**Report on Compliance for Each Major Federal Program**

We have audited Clemson University's (the University) compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the University's major federal programs for the year ended June 30, 2017. The University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

The University's basic financial statements include the operations of the Clemson University Research Foundation (CURF), a discretely presented component unit, which received \$1,104,265 in federal awards which are not included in the University's schedule of expenditures of federal awards for the year ended June 30, 2017. Our audit, described below, did not include the operations of CURF because the discretely presented component unit engaged other auditors to perform an audit in accordance with Uniform Guidance.

**Management's Responsibility**

Management is responsible for compliance with federal statutes, regulations, and the terms and conditions of its federal awards applicable to its federal programs.

**Auditor's Responsibility**

Our responsibility is to express an opinion on compliance for each of the University's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 *U.S. Code of Federal Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the University's compliance.

## **Opinion on Each Major Federal Program**

In our opinion, the University complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2017.

## **Other Matters**

The results of our auditing procedures disclosed instances of noncompliance, which are required to be reported in accordance with the Uniform Guidance and which are described in the accompanying schedule of findings and questioned costs as item 2017-001. Our opinion on each major federal program is not modified with respect to these matters.

The University's response to the noncompliance findings identified in our audit is described in the accompanying schedule of findings and questioned costs. The University's response was not subjected to the auditing procedures applied in the audit of compliance and, accordingly, we express no opinion on the response.

## **Report on Internal Control Over Compliance**

Management of the University is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the University's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the University's internal control over compliance.

*A deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that were not identified. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, we identified a deficiency in internal control over compliance, as described in the accompanying schedule of findings and questioned costs as item 2017-001 that we consider to be a significant deficiency.

## **Report on Internal Control Over Compliance, Continued**

The University's response to the internal control over compliance findings identified in our audit are described in the accompanying schedule of findings and questioned costs. The University's response was not subjected to the auditing procedures applied in the audit of compliance and, accordingly, we express no opinion on the response.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

## **Report on Schedule of Expenditures of Federal Awards Required by the Uniform Guidance**

We have audited the financial statements of the business-type activities and the aggregate discretely presented components of the University, a component unit of the State of South Carolina, as of and for the year ended June 30, 2017, and the related notes to the financial statements, which collectively comprise the University's basic financial statements. We issued our report thereon dated September 29, 2017, which contained unmodified opinions on those financial statements. We did not audit the financial statements of the Clemson University Research Foundation (a discretely presented component unit), the Clemson University Foundation (a discretely presented component unit), the Clemson University Land Stewardship Foundation (a discretely presented component unit), and IPTAY (a discretely presented component unit). Those statements were audited by other auditors whose reports have been furnished to us, and our opinions, insofar as they relate to the amounts included for these discretely presented components units, are based solely on the reports of the other auditors. Our audit was conducted for the purpose of forming opinions on the financial statements as a whole. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by the Uniform Guidance and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditure of federal awards is fairly stated in all material respects in relation to the basic financial statements as a whole.



Greenville, South Carolina  
September 29, 2017

**Clemson University**  
**Clemson, South Carolina**  
*Schedule of Findings and Questioned Costs*  
*For the year ended June 30, 2017*

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**Section I. Summary of Auditor's Results**

Financial Statements

Type of report the auditor issued on whether the financial statements were prepared in accordance with GAAP: Unmodified

Internal control over financial reporting:

- Material weakness identified? \_\_\_\_\_ yes      X   no
- Significant deficiency identified? \_\_\_\_\_ yes      X   none reported

Noncompliance material to financial statements noted? \_\_\_\_\_ yes      X   no

Federal Awards

Internal control over major federal programs:

- Material weakness identified? \_\_\_\_\_ yes      X   no
- Significant deficiency identified?   X   yes    \_\_\_\_\_ none reported

Type of auditor's report issued on compliance for major federal programs: Unmodified

Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516 (a)?   X   yes    \_\_\_\_\_ no

Identification of major federal programs:

<u>CFDA Numbers</u>	<u>Name of federal program or cluster</u>
84.007; 84.033; 84.038; 84.063 84.268	Student Financial Assistance Cluster

Dollar threshold used to distinguish between Type A and Type B Programs \$3,000,000

Auditee qualified as low-risk auditee? \_\_\_\_\_ yes      X   no

**Section II. Financial Statement Findings**

None reported

**Section III. Federal Award Questioned Costs and Findings**

**Finding 2017-001      Student Loan Repayments**

Federal Agency:      Department of Education

Program:      CFDA No. 84.038 – Federal Perkins Loan Program

Criteria or Specific Requirement:      For students with Perkins loans who have separated from the University, the loans must be converted to repayment in a timely manner which is 9 months after the student’s separation date (34 CFR section 674.31(b)(2)).

For graduated students, the graduation effective date is defined as the date the “student has completed the course of study.” (NSLDS Enrollment Reporting Guide, Appendix C).

Condition/Context:      The University communicated incorrect separation dates to the third-party loan servicer for a number of students who separated from the University and began repayment during the 2016-2017 fiscal year.

A test of the loans entering repayment during the year revealed discrepancies in the separation date reported to the student loan servicer responsible for converting loans to repayment and the date the students completed the course of study.

Approximately 310 students’ loans entered repayment during the year. Of these students, the University determined that 156 separation dates for Spring 2016 graduates were reported incorrectly as May 7th rather than April 29th. Because the third party loan servicer sets the beginning of the grace period as the first day of the subsequent month after the separation date, the error resulted in a delay of the repayment start date by one month. Separation dates for an additional 46 students who withdrew mid-term, dropped below half time, or did not return during the Spring of 2015 through Summer of 2016 were incorrectly reported from 1 to 4 months late, resulting in a corresponding delay in the repayment start date. One separation date for a Summer 2016 graduate was reported early resulting in an early repayment start date.

Questioned Costs:      \$0

Effect:      The students’ loans were converted to repayment later than required, resulting in a deferred repayment period. In one instance, the loan was converted to repayment earlier than required, shortening the borrower’s permitted grace period. These errors had no impact on the total repayment cost of the loans.



**Clemson University**  
**Clemson, South Carolina**  
*Schedule of Findings and Questioned Costs*  
*For the year ended June 30, 2017*

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**Finding 2017-001, continued**

**Cause:** Student separation dates are communicated to the loan servicer on a periodic basis throughout the year from two different sources. The National Student Clearinghouse reported separation dates for graduates, withdrawals, and other students not returning, and the University's Student Financial Services (SFS) office also reported graduation dates to the student loan servicer in an effort to ensure the loan servicer received all necessary data. Any data reported by the University overrides data reported by the Clearinghouse. For graduated students, the University incorrectly reported the effective date of graduation as the date the student received a diploma rather than the date the student completed the course of study. For the group of students who withdrew mid-term, dropped below half-time, or did not return, and the Summer 2016 graduate, SFS reported incorrect separation dates to the loan servicer after discovering students had not returned, overriding the correct separation dates reported by the Clearinghouse to the loan servicer. SFS would have been notified of these students on a Clearinghouse report that is generated for students with differing enrollment dates that would prompt the school for action. However, the report was not being delivered to current SFS staff.

**Recommendation:** Procedures should be implemented whereby student separation dates cannot be overridden without proper documentation and verification of the separation date by the Registrar's Office, as reported to the National Student Clearinghouse by that office.

**Management  
Response and  
Corrective  
Action Plan:**

Management intends to conduct additional training and monitoring procedures to improve internal controls over compliance requirements. External expertise will be engaged to provide training to those responsible for compliance requirements. Training will include a thorough explanation of the compliance requirements and instruction in developing and implementing monitoring procedures to ensure compliance with the applicable requirements.

No other office will override the University Registrar's reporting of student separation dates and other relevant information regarding Perkins Loans to the National Student Clearinghouse. Student Financial Services will verify reported dates on a monthly basis.

Management will periodically perform compliance testing for a sample of separated students each month in order to address the risk that incomplete or inaccurate data is not corrected timely. Compliance testing will include comparison of the student's separation date reported to the loan servicer to student academic records and separation dates reported to the Clearinghouse. Testing will include verification that the separation dates reported for graduates is the date the "student has completed the course of study". Separation dates for all other students should be the separation date determined by the school in accordance with guidelines set forth in the *NSLDS Enrollment Reporting Guide* and the Department of Education's *Federal Student Aid Handbook*. Student Financial Services will obtain the exception report provided by the National Student Clearinghouse indicating discrepancies in students' reported separation dates. Any discrepancies on this report will be investigated and resolved.

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**Clemson University**  
**Clemson, South Carolina**  
*Schedule of Findings and Questioned Costs*  
*For the year ended June 30, 2017*

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If errors or omissions are detected in previously reported dates, Student Financial Services will call these to the attention of the University Registrar and will verify that they are ultimately reported to the National Student Clearinghouse and to the University's student loan servicer.

**Clemson University Clemson, South Carolina *Summary Schedule of Prior Audit Findings For the year ended June 30, 2017***

In accordance with *Government Auditing Standards*, issued by the Comptroller General of the United States, the following is the status of known material findings and recommendations from prior year audits:

**Finding 2016-001**

**CONTROLLER'S OFFICE**

Clemson University  
Administrative Services Bldg.  
108 Pearman Blvd.  
Box 345321  
Clemson, SC  
29634-5321

P 864-656-2000  
F 864-656-5600

Program: Research and Development Cluster

Condition: The University uses an online time and effort reporting system, Clemson Link to Employee Activity Reports (CLEAR) to meet the requirements of Circular A-21 and Uniform Guidance, as applicable, regarding the allocation of compensation costs to federal projects. Employees who are paid directly from a sponsored (or related cost share) project are required to certify effort in the CLEAR system. Certain CLEAR reports were not generated or not properly generated for employees who switched pay codes during the year or for employees paid under certain cost share project numbers. As a result, these individuals' compensation cost charged to the projects was not certified as accurate.

Current Action

Taken/Current Status: CLEAR reports for employees who did not receive an effort report or received an incomplete effort report due to the omissions discussed above have been produced and have been presented for certification.

The missing cost share project numbering conventions have been added to the program. The University no longer generates separate CLEAR reports for the pay codes. Instead a single report is executed for the period that includes all pay code activity. Grants and Contracts Administration staff review and compare the effort report data with payroll detail data.

Grants and Contracts Administration staff have assumed responsibility from the programming staff for reviewing CLEAR

Report criteria and executing the report process for each reporting period. Report data is examined for completeness and accuracy before they are made available for certification. Should changes in report criteria become necessary, those changes are documented with a formal change request to programming staff.

**Finding 2016-002**

Program: CFDA 93.RD - Research and Development Cluster - Center of Biomaterials for Tissue Regeneration

Condition: Payroll amounts charged to a National Institute of Health grant for the Principal Investigator's (PI) salary and related fringe benefits were overcharged to the grant for the budget period. The additional salary charged was greater than the budgeted amount for the period and did not accurately reflect the PI's time devoted to the project.

Current Action

Taken/Current Status: Grants and Contracts Administration has implemented policies and procedures to provide more detailed monitoring of salaries and payroll corrections on all sponsored projects. In addition, Grants and Contracts Administration will assess the need for training and updating policies.