

**Clemson University
Clemson, South Carolina**

OMB Circular A-133 Reports

For the year ended June 30, 2015

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Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grantor's/Pass-Through Grantor's Number	Expenditures
RESEARCH AND DEVELOPMENT CLUSTER			
Department of Agriculture			
"Fastrack"- A Revolutionary Approach to Long-Generation Cycle Specialty Crop Breeding	10.RD	59-1931-0-033	\$ 1,214
Acquisition of Goods and Services	10.RD	58-6080-5-005	13,174
Acquisition of Goods and Services	10.RD	58-6080-5-009	14,709
Acquisition of Goods and Services	10.RD	58-6082-5-003	93,204
Acquisition of Goods and Services	10.RD	58-6657-3-009	8,384
Acquisition of Goods and Services	10.RD	58-6657-4-007	61,007
Acquisition of Goods and Services	10.RD	58-6657-4-010	73,405
Acquisition of Goods and Services	10.RD	58-6659-3-122	606
Acquisition of Goods and Services	10.RD	58-6659-3-126	2,849
Acquisition of Goods and Services	10.RD	58-6659-4-008	7,793
Acquisition of Goods and Services	10.RD	58-6659-4-009	31,663
Animal Health	10.RD		21,484
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	21,089
Clean WaterR3 - Reduce, Remediate, Recycle: Informed Decision Making to Facilitate Use of Alternative Water Resources	10.RD	2014-51181-22372	636,076
Clemson University Sustainable Community Project (CYFAR Sustainability)	10.RD	2011-41520-30408	146,063
Consortium of Appalachian Fire Managers and Scientists (CAFMS) Measurement of Progress and Identification of Needed Improvements	10.RD	14-JV-11330136-033	15,503
Contributions of Urban Parks and Green Space to Human Health and Well Being: An Ecosystem Services Approach	10.RD	14-JV-11330144-060	10,928
Crop Protection and Pest Management Extension Implementation Program for South Carolina to Advance Stakeholder Adoption in Key Commodities	10.RD	2014-70006-22568	130,148
Culicoides Sonorensis Transcriptome Project	10.RD	58-5430-2-313	16,450
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	10,086
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	25,440
Demonstration of Innovative Sensor-Based Nitrogen Management and Interseeding Technology to Reduce Nutrient Inputs and Weed Populations While Enhancing Farm Profitability in South Carolina	10.RD	69-4639-12-0010	20,841
Developing Molecular Resources Using Next Generation Sequencing and Evaluation of Peach NCGR Germplasm for Drought Resistance	10.RD	58-1931-2-307	1,462
Development of Plant Materials Native to Longleaf Ecosystems Within the Atlantic Coastal Plain of North and South Carolina	10.RD	09-CS-11081209-002	15,111
Enhancing the Sustainability of Livestock Production Systems on the Southeastern US	10.RD	2010-51160-21072	32,708
Environmental Risk Assessment of Perennial Grasses Genetically Engineered for Abiotic Stress Tolerance	10.RD	2010-33522-21656	89,541
Genomic and Breeding Foundations for Sorghum Bioenergy Hybrids	10.RD	2011-67009-23490	62,184
Genotypic Specificity in Plant-Herbivore Interactions and its Application to Management of an Invasive Weed	10.RD	2015-67014-22956	77,741
Hand Hygiene Promotion: An Essential Strategy for Preventing Foodborne Illness in Elementary Schools	10.RD	2011-51110-31020	186,763
Hatch	10.RD		4,293,120
Hayman Fire Resample	10.RD	14-JV-11221634-108	20,707
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	22,004
Impact of Fescue Toxicosis on Fetal Development and Postnatal Growth	10.RD	2015-67015-23218	6,867
Impact of Prescribed Fire on Polycyclic Aromatic Hydrocarbon Production and Contaminant Photo-transformation Reductions in Coastal Plain	10.RD	2014-67019-21615	126,717
Improving Mitigation of Phytophthora Ramorum in Water	10.RD	13-8130-0161-CA	22,154
Improving Mitigation of Phytophthora Ramorum in Water: Year 2	10.RD	14-8130-0161-CA	14,999
Improving Soil Health in Peach Orchards: A Demonstration	10.RD	68-4639-14-0022	5,763
Innovative Approaches to Manage and Reduce Feral Hog Damage to Agronomic Systems, Woodlands and Ecosystems Services	10.RD	69-4639-13-0025	37,732
Innovative Nematode Management Strategies to Reduce Pesticide Usage While Enhancing Farm Profit and Environmental Quality	10.RD	2010-51101-21785	213,734
Landscape-Scale Thresholds of Early Successional Habitat; Reconciling Biodiversity, Public Perception, and Timber Yield in Managed Forests	10.RD	12-CA-11330134-092	54,891

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grantor's/Pass-Through Grantor's Number	Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Agriculture, continued			
McIntire Stennis	10.RD		713,369
Multivariate Analysis of Landscape-Level Fuels Data for the Southern Appalachian Mountains	10.RD	14-JV-11330136-105	26,409
National Visitor Use Monitoring	10.RD	AG-4670-C-12-0115	2,392
Population Genomics of Streptococcus Agalactiae from Infected Bovine and Fish Sources	10.RD	2013-67012-23286	433
Producing Biological Control Agents for Use in Hemlock Woolly Adelgid Management in the Southern Appalachians	10.RD	10-DG-11083150-031	84,364
Repeated Prescribed Fires and Mechanical Fuel Treatments for Restoration in the Southern Appalachian Mountains	10.RD	12-CA-11330136-122	1,955
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	105,629
Screening and Cloning of Resistance Related Genes by RNA-SEQ in Huanglongbing (HLB) Resistant and Susceptible Citrus Breeding Lines	10.RD	59-6618-2-095	112,875
Southeastern Budwood Program	10.RD	12-8100-1414-CA	158
Southeastern Budwood Program	10.RD	14-8130-0423-CA	89,577
Summer and Winter Roosting and Foraging Ecology of Southeastern Myotis	10.RD	14-JV-11330134-116	27,646
Toward a Near Real-Time Agricultural Drought Monitoring and Forecasting	10.RD	2015-68007-23210	1,589
Tracking and Managing Diseases of Floriculture Crops Caused by Oomycetes and Fungi	10.RD	58-1907-0-103	44,995
Understanding How a Lipokine, Palmitoleic Acid (C16:1) and Stearyl-CoA Desaturase (SCD) Influence Fat Synthesis	10.RD	2012-67012-19907	8,267
Use of Obed and Wild Scenic River Sport-Climbing Areas by Rare and Sensitive Bats	10.RD	14-JV-11330134-121	10,127
Use of Wetland Systems to Treat Nursery Runoff	10.RD	58-6618-2-105	2,266
Using Local Food Banks to Improve Sustainability of Small and Limited Resource Farms	10.RD	2011-67023-30124	43,703
Water Use in the Propagation of Vegetative Animals	10.RD	58-3607-3-991	22,457
Pass-through programs from:			
Cornell University			
Eastern Broccoli: Developing An Eastern Broccoli Industry	10.RD	61314-9362	34,534
Georgia Forestry Commission			
Laboratory Analysis of Leaf Bait Samples from Streams in Georgia: 2014 - Sudden Oak Death Grant	10.RD		2,800
Kansas State University			
2015 4-H Military Partnership Grant	10.RD	S15048	7,473
2015 Military Connected Youth Local/Regional Program Support Project	10.RD	S15038	9,949
Michigan State University			
RosBREED: Enabling Marker Assisted Breeding in Rosaceae	10.RD	61-4296E	906
RosBREED: Combining Disease Resistance with Horticultural Quality in New Rosaceous Cultivars	10.RD	RC104285B	28,959
Sun Grant Program - Northeast Region	10.RD	RC103947A	6,000
Mississippi State University			
Comprehensive Field and Laboratory Studies on Cryphonectria Parasitica and Phytophthora Species Affecting American Chestnut, Chinese Chestnut and Backcross Hybrids In Field Plantings In the Southeastern United States	10.RD	011900.322497.01	16,689
North Carolina Central University			
New Strategy and Method for Isolating and Concentrating Foodborne Pathogens	10.RD	PO# USDA-NIFA-AFRI-003958	6,429
North Carolina State University			
Development of Grafting Technology to Improve Sustainability and Competitiveness of the U S Fruiting Vegetable Industry	10.RD	2011-1609-08	123,131
Development of Solid and Hollow-Core Cross-Laminated Timber Systems for Low- and Mid-Rise Construction	10.RD	2013-0043-01	84,955
Dispersal and Life History of Megacopta Cribraria from Kudzu and Implications for Management in Soybean	10.RD	2013-2839-02	28,549
Building Capacity to Control Viral Foodborne Disease: A Translational, Multidisciplinary Approach	10.RD	2011-0494-01	377,039
Development of Grafting Technology to Improve Sustainability and Competitiveness of the U.S. Fruiting Vegetable Industry	10.RD	2011-1609-01	2,929
Fellowship for Building Capacity to Control Viral Foodborne Disease: A Translational, Multidisciplinary Approach	10.RD	2011-0494-01	32,154
Impact of Transgenic Bt Crops on Helicoverpa Zea Ecology and Subsequent Resistance Risk	10.RD	2014-2219-01	9,793
Partnership to Manage Southern IPM Center	10.RD	2012-2604-27	18,920

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Agriculture, continued			
Pass-through programs, continued:			
North Carolina State University, continued			
Predicting In-season Infection Risk of Cucurbit Downy Mildew and Validation of A Downy Mildew Forecasting System.	10.RD	2012-1968-01	16,592
Reducing Beef Cattle Production Risks By Enhancing Soil Health, Drought Resilience, and Reducing Inputs Through Thoughtful Grazing Management.	10.RD	2013-2139-01	11,726
Southern IPM Center Partnership	10.RD	2015-0085-07	5,316
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		1,600
Economic Impact and Feasibility of a Horry County Food Hub	10.RD		16,941
Enabling Marker Assisted Breeding for Brown Rot Resistance/Tolerance in Peach	10.RD		8,441
Enabling Marker Assisted Breeding for Fruit Size in Peach	10.RD		793
Finding Ways to Control Fungicide Resistant Anthracnose Pathogens of Peach and Strawberry	10.RD		19,557
Improved Control of Powdery Mildew and Anthracnose in Watermelon	10.RD		10,392
Improving Control of Southern Blight and Minimizing Losses in Tomato Crops with Use of Effective Fungicides	10.RD		213
South Carolina Forestry Commission			
Impact of Laurel Wilt Disease on Redbay (<i>Persea borbonia</i>) Ecosystems	10.RD		29,226
Post-hurricane Fuel Dynamics and Its Implications to Fire Behavior	10.RD		28,819
Texas A&M University			
Improving Soil Quality to Increase Yield and Reduce Diseases in Organic Rice Production	10.RD	06-S130621	1,650
University of Florida			
Climate Variability to Climate Change: Extension Challenges and Opportunities in the Southeast Area	10.RD	UF11109 00094451	68,078
Efficacy of Several Products and Rotations for Managing Whiteflies	10.RD	PO# 1400281304	256
Precision Disease Management for Sustainable Strawberry Production in the Eastern United States	10.RD	UFDSP00010489 (00089088 UF10221)	70,672
Strategic Management of Multiple Diseases in Strawberry Nurseries and Production Fields in the Eastern United States	10.RD	UFDSP00010493	94,739
University of Georgia			
A System Approach to Improve Disease Management and Production of Watermelon In the Southeastern United States	10.RD	RF332-692/5054176	8,148
Carbon Dynamics in Management Intensive Grazing Dairy Systems	10.RD	RC284-551/4895306	9,562
Ecologically Driven Stink Bug Management in Commercial Farmscape	10.RD	RF330-451/4893146	22,807
Evaluation of Somatic Seedlings of American Chestnut for Resistance to Phytophthora Root Rot-Forest Health Initiative	10.RD	RR272-333/4784886	165
Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education (SARE) Program	10.RD	RD309-129/8644747	17,787
Sustainable Agriculture Research and Education (SARE) Professional	10.RD	RE675-171/4942706	42,540
Threshold Verification and Investigation of Border Sprays for Managing the Invasive <i>Megacopta Cribraria</i> in Commercial Soybean Production	10.RD	RE330-483/4353698	27,844
Weeds, Nitrogen and Yield: Measuring the Effectiveness of an Organic No-Till System	10.RD	RD309-122/4944816	3,909
University of Hawaii			
New Engineered Approaches for Recovering Disperse Populations of Low-Tolerance Pathogens from Food	10.RD	2014-67005-21702	55,874
Washington State University			
Genome Database for Rosaceae: Empowering Specialty Crop Research Through Big-Data Driven Discovery and Application In Breeding	10.RD	123519-G003399	41,200
Total Department of Agriculture			9,350,581
Department of Commerce			
Accelerate SC: Workforce Innovation Launch	11.RD	04-79-06838	42,113
FY 2015 Summer Undergraduate Research Fellowship (SURF)	11.RD	70NANB15H109	8,542

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Commerce, continued			
NIST Summer Undergraduate Research Fellowship (SURF) Program - Gaithersburg	11.RD	70NANB14H119	2,275
Pass-through programs from:			
GenWest			
Microplastic Marine Debris Research Support	11.RD	GSI-CU-1505	1,701
South Carolina Sea Grant Consortium			
Evaluating Wetland Function in Coastal South Carolina to Support Low Impact Development Decision-Making	11.RD	N153	30,348
Examining Capacity for a Cooperative Seafood Tourism Trail as a Value-Added Marine Resource-Based	11.RD	M494	6,408
Fishery-Related Working Waterfronts	11.RD	A/E-SG5	8,741
Green Infrastructure Design for Stormwater Management in Coastal South Carolina: An Assessment of Ecohydrological Function	11.RD	M488 NA10OAR4170073-P/M-2N-	823
Microbial Ecology of a South Carolina Beach	11.RD	M11N	2,864
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	N155	38,206
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	537
Perceptions of Marine Aquaculture in Tourist Destinations on the Southeastern United States Coast - Year 2	11.RD	M414 - Year 2	49,721
Understanding Demand for Value-Added Products and Services Associated with For-Hire Boat Trips on the South Carolina Coast	11.RD	M490	1,965
Wind and Rain Resistant Design for Coastal Cross Laminated Timber Building	11.RD	N157	50,322
Wind and Rain Resistant Design for Coastal Cross Laminated Timber Building	11.RD	N257	6,210
South Carolina Manufacturing Extension Partnership			
FY 13-14 SCMEP	11.RD	2014-002	(1)
University Corporation for Atmospheric Research			
Climate Adaptation and Mitigation Program	11.RD	Z14-15056	4,225
University of Central Florida			
Evaluation of IC Interconnect Failure of Through Silicon Vias	11.RD	277240	29,533
Total Department of Commerce			284,533
Department of Defense			
2013 & 2014 Clemson Mini-Conference	12.RD	H98230-13-1-0283	3,614
A Multi-Function/Multi-Fuel ThermoAcoustic Generator/Heat Pump (TAG/HP) for Marine Expeditionary Forces	12.RD	N00014-14-1-0227	380,546
A Practical Approach for Modeling Matrix Diffusion Effects in REMChlor	12.RD	W912HQ-14-C-0009	71,134
Adaptive Multicarrier Transmission for Dynamic Spectrum Access in Tactical Cognitive Radio Networks with Fading Channels	12.RD	N00014-12-1-0060	33,505
Adaptive Reliable Unicast and Multicast Transmission in Tactical Packet Radio Networks	12.RD	W911NF-11-1-0427	60,828
Advanced Optical Fiber Development for Fiber Lasers with Sub-GHz Linewidth	12.RD	W911NF-14-1-0647	283,082
Advanced Optical Fiber Development for kW Fiber Lasers with Sub-GHz Linewidth	12.RD	W911NF-14-1-0629	108,000
Anthropomorphic Interfaces on Automation Trust, Dependence, and Performance in Younger and Older Adults	12.RD	FA9550-12-1-0385	95,556
Atomistic Molecular Simulation Methods to Predict CBW A-Surface Interactions	12.RD	HDTRA1-10-1-0028	274,850
Bi-Component Fiber Approach to Making Superomniphobic Textile Surfaces	12.RD	W911QY-14-P-0413	32,147
Carbon Fibers Derived from Sustainable Precursors	12.RD	W911NF-10-2-0024	42,759
Combined Biological and Chemical Mechanisms for Degradation of Insensitive Munitions in the Presence of Alternate Explosives	12.RD	W912HQ-12-C-0058	102,980
Concept Validation and Optimization for a Vent-based Mine-blast Mitigation System	12.RD	W911NF-11-1-0518	125,318
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	23,896
Development of Marine Antifouling Coatings Utilizing a Fouling Deterrence Strategy	12.RD	N00014-11-1-0183	5,606

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Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grantor's/Pass-Through Grantor's Number	Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Defense, continued			
DURIP: Acquisition of a Bi-static Fabry-Perot Interferometer System for Measuring the Thermospheric Winds and Temperatures Near the Geomagnetic Equator in the African Longitudinal Sector	12.RD	FA2386-13-1-3011	52,315
Experimental Investigation of Turbulence-Chemistry Interaction in High-Reynolds Number Turbulent Partially Premixed Flames	12.RD	FA9550-14-1-0404	43,961
Facilitating Soldier Receipt of Needed Mental Health Treatment	12.RD	W81XWH-11-2-0010	271,871
Friction Stir Welding Behavior of Selected 2000-series and 5000-series Aluminum Alloys	12.RD	W911NF-11-1-0207	90,820
Garment Modification and Production Support - Task Orders	12.RD	2008-1221204-022	7,819
Gradient Films from Shape Memory Nanofoams for Waveguide Coating	12.RD	HDTRA1-10-1-0101	323,586
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	64,055
Identifying and Evaluating Impacts to Wetlands from the Savannah River Estuary	12.RD	W912HZ-14-2-0002	270,498
Innovation in Broad-Area Diode Laser Array Architecture: Coupling Grating-Confined Zigzag Modes for High Power, High Brightness Applications	12.RD	W911NF-11-1-0519	40,723
Iterative Decoding of q-ary Parity-check Codes and Related Problems	12.RD	H98230-13-1-0232	9,863
Liquid Sampling-Atmospheric Pressure Glow Discharge (LS-APGD) Microplasmas for Elemental, Isotopic, and Molecular Determinations	12.RD	HDTRA1-14-1-0010	165,006
Long-term Stable Conservative Multiscale Methods for Vortex Flows	12.RD	W911NF-14-1-0480	70,642
Magnetic Field Assisted Assembly of Ordered Multifunctional Ceramic Nanocomposites for Extreme Environments	12.RD	FA9550-12-1-0459	196,923
Military Uniform System Technology Program - MUST/DART DLA Assessment and Review Tool (DLA-MUST)	12.RD	SP4701-14-D-7004/0001	14,750
Multicharged Ion Promoted Desorption (MIPD) of Reaction Co-Products	12.RD	W911NF-13-1-0042	71,198
New Fouling Deterrent Strategies to Defeat Barnacle Biofouling	12.RD	N00014-14-1-0488	146,700
New Protein Modification under Nitrosative Stress	12.RD	W81XWH-10-1-0385	77,300
Optical Fibers with Elevated Threshold for Higher-Order Mode Instability	12.RD	FA9451-15-D-0009/0001	3,498
Optimization of TM-Doped Phosphosilicate Glass for High Power Fiber Lasers	12.RD	FA9451-15-1-0030	84,494
PANTS and SERMON Meetings in the Southeast	12.RD	H98230-13-1-0296	5,264
Preventing Infection by Surface Modification of Orthopaedic Fracture Fixation Implants for Improved Limb Salvage Outcomes	12.RD	W81XWH-14-1-0438	139,011
Production and Characterization of Third Generation Cut Resistant Fibers via Acrylic/Copolyaramid Bi-Component Wet Spinning with a Focus on Scaled Up Production and Product Enhancements	12.RD	W911QY-13-C-0020	46,557
Protections Methods for Dc Ship Power Systems Using the Z-Source Breaker	12.RD	N00014-13-1-0612	3,926
Reactive-Moiety Functionalization of Polyurea for Increased Shock-Mitigation Performance	12.RD	N00014-14-1-0286	61,923
Short Term Project (STP) - MUST/DART DLA Assessment and Review Tool (DLA-DART)	12.RD	SP4701-14-D-7004/0002	27,849
Spatial and Spectral Multiplexing of Optical Beams	12.RD	N00014-14-1-0264	151,750
Subsurface Thermal Energy Storage (STES) for Improved Heating and Air-Conditioning Efficiency	12.RD	W912HQ-10-C-0027	53,233
Technologies and Methodologies in Prevention of ASR in Concrete Pavements	12.RD	N62583-09-C-0024	209,236
Ultra-Trace Level Quantification of Alpha- and Beta- Emitting Radionuclides with Extractive Scintillating Resin	12.RD	HDTRA1-12-1-0012	473,684
Pass-through programs from:			
Clemson University Research Foundation			
3D Meta-Optics for High Energy Lasers	12.RD	20100669-04-CRF	142,505
Advanced Optical Fibers for High Power Fiber Lasers	12.RD	W911NF-10-1-0423	388,891
Light Filamentation Science	12.RD	232897	40,656
Novel Fiber Concepts for High Power Single Mode Fiber Lasers	12.RD	W911NF-12-1-0332	367,921
Corvid Technologies		14-006 FA9550-14-C-0029//CLIN 0001: Charge Code	
Physical Submodel Development for Turbulence Combustion Closure	12.RD	1041-253	33,737
FlexTech Alliance, Incorporated			
Production of Large Area Energy Harvesting Devices via Roll-to-Roll Printing Processes	12.RD	RFP14-169_Clemson	194,590
Huntington Ingalls Industries			
Power and Emerging Technologies Medium voltage Direct Current (MVDC) Z-Source Breaker Design & Functional Requirements Specifications	12.RD	PO# 4500449324	122
Leidos, Incorporated			
Polymer Kelp for Vessel Stopping	12.RD	P010157849	108,548

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Defense, continued			
Pass-through programs, continued:			
Leidos, Incorporated, continued			
Polymer Kelp Year 2	12.RD	P010157850	134,736
Lumany LLC			
Solid-State Fundamental Mode Green Laser for Ocean Mine Detection	12.RD	N13A-023-0367	12,106
Solid-State Fundamental Mode Green Laser for Ocean Mine Detection	12.RD		89,227
Massachusetts Institute of Technology			
Evaluation of Radiation-induced Photonic Defects in Si, Ge, Chalcogenides and Polymers	12.RD	5710003309	50,131
Mote Marine Laboratory			
Novel Compounds from Shark and Stingray Epidermal Mucus with Antimicrobial Activity Against Wound Infection Pathogens	12.RD	MML-107-547	27,023
NextGen Aeronautics Incorporated			
Porous Hybrid Composite for Enhanced Thermal Protection Systems (ComTPS) PH2	12.RD	PO 13-099/ CPFF /COMTPS PH2/3080	105,359
North Carolina A&T State University			
DNI S&T Center of Academic Excellence: Center for Academic Studies in Identity Sciences	12.RD	210096B	25,464
Rutgers, The State University of New Jersey			
Single Crystal Fiber Lasers	12.RD	4816 PO# S1762674	101,569
Scientific Research Corporation			
Test Capabilities Development (TCD)	12.RD	SR20140079 T214 Clemson-TRMCBOA-19 / TO# SR20141971 // SRC0044-BA97- CP-1	179,982
Test Capabilities Development (TCD) for the Test Resource Management Center (TRMC)	12.RD		180,551
Structured Materials Industries, Incorporated			
Infrared-Transparent Electromagnetic Shield Coatings	12.RD	41985-070214-01	16,500
Transparent Conductive AlGaIn/GaN Coatings for EMI/RFI Attenuation	12.RD	42000-062514-01	16,912
The Boeing Company			
High Performance Stretch Polymer Fibers	12.RD	652218 PCC 08	66,129
University of California Santa Barbara			
Bio-Inspired Synchronization and Sensors for Distributed Mobile Gunfire Detection	12.RD	KK1524	22,384
University of Central Florida			
Innovative Design and Manufacturing of Gradient-Index-Based Transformation Optics Components	12.RD	65018506 PO# 291964	47,088
University of Dayton Research Institute			
Nanoenergetics-Fundamental Exploration and Technological Development	12.RD	RCS14053	42,583
University of Florida			
Mathematical Approaches to WMD Defense and Vulnerability Assessments on Dynamic Networks	12.RD	UFDSP00010499	24,225
University of Illinois			
Novel Optical Fiber Materials with Engineered Brillouin Gain Coefficients SSL-1: Novel Fiber Lasers	12.RD	2012-03919-01	128,481
University of Michigan			
Control of Hub Motor Driven Multi-Axle Land Vehicles	12.RD	3003058759	7,712
Hybrid Electric Vehicle Thermal Management System Design	12.RD	3003058759	57,737
Metam-Materials Design for Tank Tread Backers Pads	12.RD	3003058759	53,696
Modeling and Optimization of Electrified Propulsion Systems	12.RD	3002307587 (formerly F011680)	1,463
Modeling and Optimization of Electrified Propulsion Systems	12.RD	3003058759	63,733
Powertrain Thermal Management	12.RD	3002307587 (formerly F011680)	2,319
Ultracapacitor Energy Storage for Improving Fuel Economy and Extending Battery Life in Heavy Vehicles	12.RD	3003058759	57,604
Ultracapacitor Energy Storage for Improving Fuel Economy and Extending Battery Life in Heavy Vehicles	12.RD	3002307587 (formerly F011680)	413
University of Southern Mississippi			
Correlating Early Protective Coating Material Characterization and Properties with Corrosion Related Failures via Real and Accelerated Corrosion Testing in Model and Commercial Systems	12.RD	USM-GR04695-001	74,296
University of Texas at Dallas			
Search for Majorana Fermions In s-Wave Fermionics Super Fluids	12.RD	1301030 PO#S035654	84,965

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

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Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grantor's/Pass-Through Grantor's Number	Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Defense, continued			
Pass-through programs, continued:			
University of Massachusetts - Dartmouth Photovoltaic Fabrics	12.RD	13938	16,309
Total Department of Defense			7,789,943
Department of the Interior			
Administrative Histories of Fort Sumter National Monument and Charles Pinckney National Historic Site	15.RD	P14AC01689	3,073
Bat Assemblages at Big South Fork National River and Recreation Area (BISO): Potential Effects of Prescribed Fire	15.RD	G14AC00049	22,859
CESU: Building the Capacity to Monitor Coastal Marine Ecosystem Health: Reagent Development and Technical Applications of Novel Antibody and Molecular Tools	15.RD	P12AC11053	2,155
Conservation Corridors for Desert Tortoises	15.RD	G13AC00019	2,056
Conservation Leadership (Science Advisor to the Director, NPS)	15.RD	P13AC01379	229,486
Developing an Alligator Conservation Strategy for South Carolina	15.RD	G12AC20329	694
Dissolved and Particulate Anthropogenic Organic Pollutants in the Coastal Environments of the Southeastern US	15.RD	P12AC11162	5,129
Eastern Brown Pelicans: Dispersal, Seasonal Movements and Monitoring of PAH's and Other Contaminants in the Northern Gulf of Mexico	15.RD	G12AC20367 P11AC91091 (formerly	120,351
Front-End Development for the Biodiversity Database of Great Smoky Mountains National Park	15.RD	P11AT51069)	3,273
Historic Metals Conservation at Fort Moultrie and Fort Sumter	15.RD	P13AC01410	13,408
Implement Assessment Protocol for the Rare Carolina Bogmunt Population at Congaree National Park	15.RD	P12AC11253 P08AC00215 (formerly	3,183
Internship Program for Fire and Fuels Management	15.RD	J5500080012)	30,008
JFSP Project 14-1-06-19-- Forest Fire Alters Disinfection Byproduct Precursors from Forested Watersheds	15.RD	L14AC00163	31,452
Latin-American's Assigned Values to Natural and Historical Parks Case of Castillo de San Marcos & Fort Matanzas National Monument and Great Smoky Mountains National Park	15.RD	P13AC01367	1,806
Needs Assessment for Interpretation and Education	15.RD	P13AC01020	54,230
Needs Assessment for Visitor and Resource Protection and Three Specialty Career Fields in Collaboration of the CESU Network	15.RD	P12AC11224 (H5000085050)	27,329
NPS Southeast Region Marine Science Support Center	15.RD	P12AC11053	7,888
Preservation of Historic Metal Architectural Elements of Battery Jasper	15.RD	P14AC01484	14,350
Program Management for the SC Water Resources Center	15.RD	G11AP20105	74,130
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)	13,517
Retreat of Tidally Influenced Freshwater Forested Wetlands in the Southeast: Biogeochemical Investigations and Field Support	15.RD	G14AC00132 P11AC91099 (formerly	43,645
Scion and Seed Collection and Processing at Carl Sandburg Home National Historic Site	15.RD	P11AT50774)	251
Shorebird Habitat Use During Migration in Cape Romain NWR	15.RD	G15AC00231 P11AC91078 (formerly	5,162
Structural Integrity Assessments at Fort Sumter National Monument (FSNM)- CESU	15.RD	P11AT50423) P11AP60979 (formerly MT-2210-	85,246
Structural Prognosis for the Effective Management of Nation's Cultural Heritage	15.RD	11-NC-02)	4,535
Student Internship to Collate Research Data and Develop Interactive Natural Resource Maps at Congaree National Park	15.RD	P13AC01357	15,354
The Effects of Management on Carbon Sequestration in Pocosin Wetlands of the Great Dismal Swamp, Virginia	15.RD	G14AC00131	32,387
Treatment of Museum Collection Objects from Fort Sumter and Fort Moultrie National Monuments	15.RD	P12AC11169 (H5000085050)	3,644
Visitor Use Management Research of Delaware Water Gap National Recreation Area	15.RD	P14AC01707	26,064
Pass-through programs from:			
South Carolina Department of Natural Resources Carolinas Regional Acoustic Bat Surveys	15.RD	SCDNR FY2015- SCDNR FY2015-	12,682
Determining Shorebird Utilization of Horseshoe Crab Spawning in Cape Romain NWR	15.RD	0022/P24019497215	8,772

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of the Interior, continued			
Pass-through programs, continued:			
South Carolina Department of Natural Resources, continued			
Genetic Assessment of Eastern Brook Trout Populations in South Carolina	15.RD	P24015405715	21,480
South Carolina Small River Conservation Planning Project	15.RD	SCDNR FY2015-11	2,504
Status Assessment for Blue Ridge and Piedmont Herpetofauna of High Priority in South Carolina	15.RD	SCDNR P24014306012/P24014406012	3
Status Update for Bog Turtles (<i>Glyptemys muhlenbergii</i>) in South Carolina	15.RD	SCDNR FY2014- 008/P24014406012	1,979
University of Tennessee			
Cumberland Habitat Conservation Plan	15.RD	8500039771	3,516
Wildlife Management Institute			
Assessing Priority Amphibian & Reptile Conservation Areas (PARCAs) and Vulnerability to Climate change in the North Atlantic Landscape Conservation Cooperative	15.RD	NALCC-2011-16	1,569
Interactive Conservation Planning for the Appalachian LCC (ALCC)	15.RD	ALCC 2014-02	90,333
Total Department of the Interior			<u>1,019,503</u>
Department of Justice			
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	117,768
South Carolina Department of Public Safety			
Human Trafficking in South Carolina	16.RD	FR #4100055692/4100053536/ 5400007375	10,656
West Virginia Research Corporation			
Use of Periocular Features for Biometric Recognition	16.RD	09-0970-CU	90,380
Total Department of Justice			<u>218,804</u>
Department of Labor			
Pass-through programs from:			
Florence-Darlington Technical College			
Accessible Support Services and Instruction for Sustainable Transition (ASSIST) to Work	17.RD	B0005504	29,726
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	357,256
Total Department of Labor			<u>386,982</u>
Department of State			
Internet Democracy Support for West Africa	19.RD	S-LMAQM-12-GR-1033	146,946
Confidential	19.RD	SG-R-IR1516-7 m00	95,899
Total Department of State			<u>242,845</u>
Department of Transportation			
2013 Dwight David Eisenhower Transportation Fellowship Program	20.RD	DTFH64-13-G-00023	1,653
2014 Dwight David Eisenhower Transportation Fellowship Program	20.RD	DTFH6414G00055	4,228
Pass-through programs from:			
South Carolina Department of Transportation			
Applying Successfully Proven Measures in Roadway Safety to Reduce Harmful Collisions in South Carolina	20.RD	1618; SPR No. 711	186,195
Best Practices for Accessing Culvert Health and Determining Appropriate Rehabilitation Methods	20.RD	1694; SPR No. 718	31,699
Compliance with the United State Environmental Protection Agency (USEPA) Effluent Limitation Guidelines-Turbidity Control and Surface Outlets	20.RD	SPR No. 702	47,517
Cost Effective Strategies for Estimating Statewide AADT	20.RD	1691; SPR No. 717	1,774
Cross-Slope Verification using Mobile Scanning on SCDOT Interstates	20.RD	1714; SPR No. 719	2,594

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Transportation, continued			
Pass-through programs, continued:			
South Carolina Department of Transportation, continued			
Development of SC Databases and Calibration Factors for the Highway Safety Manual (HSM)	20.RD	1621; SPR No. 712	30,461
Improvements to Acceleration Design Response Spectra for Seismic Design of Transportation Structures in South Carolina	20.RD	1623, Proj No. 686	37,912
Integration of the Incident Command System (ICS) Protocol for Effective Coordination of Multi-Agency Response to Traffic Incidents	20.RD	1543; Proj No. 699	96,399
Operational and Economical Analysis of Access Management	20.RD	1665; SPR No. 715	37,015
Professional Services Contract Manager On-Demand Training and Best Practices	20.RD	1635; SPR 713	160,456
Ranking of Pavement Preservation Methods and Practices	20.RD	1456; Proj No. 695	101
Ranking of Pavement Preservation Methods and Practices	20.RD	1574; Proj No. 695	64,082
Real Time Measurement of Scour Depths Around Bridge Piers and Abutments	20.RD	1417; Proj No. 692	111,039
SCDOT Asset Collection	20.RD	1692; SPR No. 716	14,252
Support for the Development and Implementation of an Access Management Program through Research and Analysis of Collision Data	20.RD	1591; Project No. 706	128,517
Validation of Contractor HMA Testing Data in the Materials Acceptance Process - Phase II	20.RD	1508; Project No. 697	27,861
TransAnalytics, LLC			
The Effects of Medical Conditions on Driving Performance	20.RD	DTNH22-09-D-00135, Task Order No. 04	64,931
University of Iowa			
Project V2V Safety Applications Study (miniSIM multi-site)	20.RD	PO# 1001302881 W000547753	104,248
University of North Carolina- Chapel Hill			
Older Drivers' Pedal Behavior	20.RD	5-55002	56,267
University of Tennessee			
Automated Traffic Surveillance from an Aerial Camera Array	20.RD	8500039905	27,537
STC - Educational Component	20.RD	8500037533	41,630
Total Department of Transportation			<u>1,278,368</u>
Appalachian Regional Commission			
Science on the Move: STEM Engagement Opportunities to Rural Communities	23.RD	SC-17835-14	13,198
Total Appalachian Regional Commission			<u>13,198</u>
National Aeronautics and Space Administration			
A Sounding Rocket Investigation of Neutral Jets Associated with Auroral Arcs	43.RD	NNX14AH09G	15,353
AZURE: Auroral Zone Upwelling Release Experiment	43.RD	NNX15AL71G	4,336
BL LAC Objects at the Highest Redshifts	43.RD	NNX14AK63G	34,239
BL LACERTAE OBJECTS AT HIGH REDSHIFTS	43.RD	NNX14AK49G	21,454
Cosmic Chemical Memory and Importance for Cosmochemical Samples	43.RD	NNX14AI25G	52,030
Cosmic Metal Abundances from Fermi-GRB Afterglow Spectroscopy	43.RD	NNX10AO77G	24,195
Equatorial Vortex Experiment (EVEX): A Study of the Ionospheric Plasma Circulation and the Sunset Layer from Kwajalein (Clemson CO-I Proposal)	43.RD	NNX10AL26G	89,950
Geospace Response to Lower Atmospheric Wave Variability Due to the El Nino - Southern Oscillation	43.RD	NNX11AJ13G	66,886
Mesosphere-Lower Thermosphere Turbulence Experiment (MTEX) (Co-I Proposal Clemson University)	43.RD	NNX13AE26G	30,016
MIST: Mesospheric Inversion-layer Stratified Turbulence Study	43.RD	NNX14AH45G	109,448
NASA Space Technology Research Fellowships (NSTRF) - Fall 2014	43.RD	NNX14AN43H	60,973
Neutral-Ion Coupling and Wind Shear Effects in the Daytime Lower Ionosphere	43.RD	NNX09AI20G	418
NRA / NASA Earth and Space Science Fellowship (NESSF) Program - 2014	43.RD	NNX13AM28H	29,021
NRI-Small: Long, Thin Continuum Robots for Space Applications	43.RD	NNX12AM01G	49,151
Nucleosynthesis and Galactic Chemical Evolution of Cosmochemically Significant Isotopes	43.RD	NNX10AH78G	22,479
Review of Multi-Team Systems Related to Long Duration Exploration Missions	43.RD	NNJ15HK12P	19,277
Swift, Nustar and the Origin of the X-Ray Background	43.RD	NNX14AH66G	9,588
The Role of Field Aligned Ion-drag in Driving Vertical Winds and Mass Density Enhancements Observed in the Cusp Region of Earth's Upper Thermosphere	43.RD	NNX13AF29G	198,647

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Aeronautics and Space Administration, continued			
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	45,785
Waves and Instabilities from a Neutral Dynamo (WINDY)	43.RD		2,767
Pass-through programs from:			
College of Charleston			
Design and Characterization of Periodic Cellular Meta-Materials with Targeted Mechanical, Acoustic, and Effective Material Properties	43.RD	22-SG-Clemson	14,162
Design of Haptic Feedback Strategies within Human-Machine Interfaces for Unmanned Aerial Vehicles (UAVs)	43.RD	22-SG-Clemson	11,386
Development of an X-Ray Irradiation Port for Biomedical Samples at the CUEBIT Highly Charged Ion Facility	43.RD	21-SG-Clemson	11,732
Graduate Research Assistantship: Evolution of Corrosion Reactivity During Sliding Wear of Titanium Nitride/Titanium Nanolaminate Coatings	43.RD		8,412
Iron Binding as the Primary Mechanism for Polyphenol Antioxidant Prevention of Cell Death and DNA Damage	43.RD	22-NE-Clemson	16,696
Light-Weight Nanocomposites of Superior Thermal and Electrical Properties for Space Applications	43.RD	19-SG-Clemson	15,316
Portable Hardware for Sensorimotor Adaptation	43.RD	21-SG-Clemson	(2,398)
South Carolina Space Grant Consortium Campus Director Funds	43.RD	18-SG-Clemson	2,661
GATS, Incorporated			
Analysis of Short-Term Tidal Perturbations	43.RD	GATS_SC_12005	25,557
Smithsonian Astrophysical Observatory			
The Largest Complete Sample of Local AGN	43.RD	GO4-15132X	28,559
University of Central Florida			
Leadership-Followership: Moving Beyond Traditional Leadership to Build Highly Functional Autonomous Teams	43.RD	64016352-01	30,196
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)	26,449
Total National Aeronautics and Space Administration			<u>1,074,741</u>
Institute of Museum & Library Services			
The Open Parks Grid: the Gateway to Parks Information	45.RD	LG-05-10-0117-10	16,515
Total Institute of Museum & Library Services			<u>16,515</u>
National Science Foundation			
A Novel Concept for Micro-Power Generation Using Flow-Induced Self-Excited Oscillations	47.RD	CMMI-1000667	(664)
Advanced Cyberinfrastructure - Research and Educational Facilitation: Campus-Based Computational Research Support	47.RD	ACI-1341935	1,992,323
AF: Medium: Collaborative Research: Sparse Polynomials, Complexity and Algorithms	47.RD	CCF-1407623	73,359
AIR Option 2: Research Alliance Situational Intelligence for Smart Grid Optimization and Intelligent Control	47.RD	IIP-1312260	51,912
Analysis and Stability of Dynamical System Models Over Networks	47.RD	DMS-1211691	4,820
Analysis of Stochastic Context-Free Grammars for RNA Secondary Structure Prediction	47.RD	DMS-1312817	43,497
Application Characterization for Adaptive Computing Platform Determination for Computational and Data-Enabled Science and Engineering	47.RD	ACI-1404981	54,079
ARRA - CAREER: Influence of Social Capital on Under-Represented Engineering Students' Academic and Career Decisions	47.RD	EEC-0950710	98,605
ARRA - Organized Materials for Plastic Electronics: Divided Pi-Ways and Platinum Energy Canopies	47.RD	CHE-0847132	(16,450)
ARRA - REU Site: Undergraduate Research in Human-Centered Computing	47.RD	CNS-0850695	225
BIGDATA: F: DKM: Collaborative Research: PXFS: ParalleX Based Transformative I/O System for Big Data	47.RD	IIS-1447771	82,857
Biomechanics of Self-Assembly of the Lepidopteran Feeding Device	47.RD	PHY-1305338	178,375
Broadband Dielectric Spectrometers with 1-10 nm Planar Nanofluidic Channels	47.RD	ECCS-0925424	6,487
Capillary-Channeled Polymer Fibers: Chemistries and Structures for Protein Separations and Analytics	47.RD	CHE-1307078	143,617
CAREER: A New Efficient and Cooperative Large-Scale Distributed Data Sharing System	47.RD	CNS-1254006	45,968

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
CAREER: Advancing the Mechanistic Understanding of Field-Scale Preferential Flow and Transport Processes in Soils Using Geophysics	47.RD	EAR-1151294	97,801
CAREER: Algorithmic Aspects of Ordinal Matching Problems	47.RD	CCF-0845593	30,502
CAREER: Computational Modeling of Protein Evolvability	47.RD	MCB-0953783	111,627
CAREER: Creating Effective, Sustainable Inquiry-Based Instruction in Middle School Science Classrooms	47.RD	DRL-0952160	132,746
CAREER: Electromechanical Transduction of Vibratory Energy Harvesters in Random and Non-Stationary Environments	47.RD	CMMI-1055419	17,910
CAREER: Harnessing Hybrid Computing Resources in PetaScale Computing and Beyond	47.RD	OCI-1149644	88,423
CAREER: Hierarchical Mechanical Models of Cell Constructs	47.RD	CBET-1254609	90,529
CAREER: High Resolution Spectrochemical Imaging Through Tissue	47.RD	CHE-1255535	145,689
CAREER: Integrated Materials-Mechanics-Manufacturing Approach to Hot Blank - Cold Die (HB-CD) Forming of Lightweight Alloy Sheets	47.RD	CMMI-1254670	78,586
CAREER: Modeling Irrationalities of Designers to Support their Decisions for Net-Zero Energy Buildings	47.RD	CMMI-1054122	103,289
CAREER: Models for Supply Chain Design and Logistics Management of Biofuels	47.RD	CMMI-1462420	65,597
CAREER: Multiscale Thermomechanical Analysis of Nanomaterials and Nanostructures	47.RD	CBET-0955096	55,970
CAREER: Particle Magnetophoresis in Ferrofluid Microflows for Lab-on-a-Chip Applications	47.RD	CBET-1150670	71,314
CAREER: Student Motivation and Learning in Engineering	47.RD	EEC-1055950	88,698
CAREER: Supporting Patterns for Embedded Network Systems	47.RD	CNS-0745846	58,118
CAREER: The Evolution of Gas in Disks - Setting the Stage for Planet Formation	47.RD	AST-0954811	100,127
CAREER: Understanding Carbon Nanoassembly in Biological and Environmental Systems	47.RD	CBET-0744040	(42)
CAREER: Cooperative Control and Decision-Making for Human-Agent Collaborative Teams	47.RD	1454139	839
CAREER: Student Motivation and Learning in Engineering	47.RD	EEC-1055950	3,597
CC*IE IAM: FeduShare: Bridging Campus and Research Identity and Access Management for Self-Managed Collaboration	47.RD	ACI-1440609	70,026
CC*IE Region: Southern Partnership in Advanced Networking (SPAN)	47.RD	ACI-1440659	24,047
CC-NIE Integration: Clemson-NextNet	47.RD	OCI-1245936	308,364
Center for Aviation and Automotive Technology Education Using Virtual E-School [CA2VES]	47.RD	DUE-1104181	953,236
CGV: Large: Collaborative Research: Coupling Simulation and Mesh Generation using Computational Topology.	47.RD	IIS-1314757	32,011
CGV: Large: Collaborative Research: Modeling, Display, and Understanding Uncertainty in Simulations for Policy Decision Making	47.RD	IIS-1212501	76,176
CHS: Small: Looking Across the Uncanny Valley: Procedural and Data-Driven Methods for Gaze Modeling	47.RD	IIS-1423189	102,704
CI SEEDS: Seeding the Next Generation Cyberinfrastructure Ecosystem	47.RD	1212680	11,240
CI-P: Collaborative Research: HomeSHARE - Home-Based Smart Health Applications Across Research Environments	47.RD	CNS-1405723	9,138
CI-SEEDS: Seeding the Next Generation Cyberinfrastructure Ecosystem	47.RD	ACI-1212680	406,352
Collaborative Research: "Hands-On" Collaborative Reasoning Across the Curriculum	47.RD	DUE-1022941	56,364
Collaborative Research: CEDAR--A Focused Study of Sustained Upward Vertical Winds in the Auroral Zone	47.RD	AGS-1243077	29,229
Collaborative Research: CEDAR--Development and Application of a Multi-site Observing Network to Study Mid-latitude Thermospheric Dynamics	47.RD	1138931	16,813
Collaborative Research: CEDAR--Development and Application of a Multi-site Observing Network to Study Mid-latitude Thermospheric Dynamics	47.RD	AGS-1138931	18,330
Collaborative Research: CEDAR--Observational and Numerical Studies of Tide-planetary Wave Coupling	47.RD	AGS-1139048	8,784
Collaborative Research: Characterizing Climate-Induced Qualitative Changes in Plant Biopolymer Composition and Their Influence on Soil Processes	47.RD	DEB-1145993	161,861
Collaborative Research: Comprehensive Investigation of Midlatitude Ionospheric Irregularities	47.RD	AGS-1007539	13,000
Collaborative Research: Data Selection for Unique Model Identification	47.RD	DMS-1419038	7,263
Collaborative Research: Developing Engineer of 2020 Traits: How Do Non-curricular Activities Impact African American Students?	47.RD	EEC-1159813	30,927
Collaborative Research: Do Diverse Members of the Epsilonproteobacteria Employ a Novel Nitrate Reduction Pathway?	47.RD	MCB-1265410	29,934
Collaborative Research: Effects of Hydrologic Processes on In Situ Stress Transients	47.RD	EAR-0944315	45,971

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Collaborative Research: Engineering Education Research Leader NetWorkshops: Mentoring, Communicating, and Power Brokering for the Next Generation	47.RD	EEC-1314725	3,691
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	AGS-1153294	17,138
Collaborative Research: Fluid Dynamics Foundations of Cell Printing	47.RD	CBET-0936235	3,537
Collaborative Research: G-SESAME Cloud: A Dynamically Scalable Collaboration Community for Biological Knowledge Discovery	47.RD	DBI-0960586	95,119
Collaborative Research: Hybrid Integration of Plasmonic Interferometer Sensors and Active Optoelectronic Devices on a Single Microfluidic Chip	47.RD	ECCS-1127957	79,008
Collaborative Research: Hybrid Modeling of Reactive Transport in Porous and Fractured Media	47.RD	EAR-1246297	27,066
Collaborative Research: Intracellular Localization of Biosynthetic Pathways for Conversion of Lipids to Dicarboxylic Acids in Oleaginous Yeast	47.RD	CBET-1403099	115,429
Collaborative Research: Jicamarca Radar Studies of Gravity Waves from D Region to Lower F Region	47.RD	AGS-1143514	64,938
Collaborative Research: Kinetics of Autonomous Catalytic Nanomotors in Confined and Crowded Environments	47.RD	ECCS-1303099	2,692
Collaborative Research: PFISR Ion-Neutral Observations in the Thermosphere (PINOT)	47.RD	AGS-1243467	51,244
Collaborative Research: Processing and Properties of Cellulose Films for MEMS Applications	47.RD	CMMI-1130825	2,343
Collaborative Research: Research Initiation Grant: Influence of Motivation on Learning Outcomes in an Engineering Service Course	47.RD	EEC-1240327	8,055
Collaborative Research: REU Site: Computational Algebraic Geometry, Combinatorics, and Number Theory	47.RD	DMS-1156761	3,485
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	19,436
Collaborative Research: Topological States and Quantum Information in Semiconductors and Cold Atom Superfluids	47.RD	PHY-1104527	18,386
Collaborative Research: An Intelligent Restoration System for a Self-healing Smart Grid (IRS-SG)	47.RD	ECCS-1408141	10,245
Collaborative Research: G-SESAME Cloud: A Dynamically Scalable Collaboration Community for Biological Knowledge Discovery	47.RD	DBI-0960586	6,991
Collaborative Research: Planning Grant: I/UCRC for Advanced Mammalian Biomanufacturing Innovation Center (AMBIC)	47.RD	1464459	3,706
Collaborative Research: Planning Grant: I/UCRC for Real-Time Intelligence for Smart Electric Grid Operations (RISE)	47.RD	1464637	462
Collaborative Research: REU Site: Computational Algebraic Geometry, Combinatorics, and Number Theory	47.RD	DMS-1156761	268
Conjugated Polymer Nanoparticles for Nanoscale Chemical Microscopy	47.RD	CHE-1058885	124,053
Controlling and Enhancing Optical Gradient Forces in Integrated Optomechanical Devices	47.RD	ECCS-1101845	46
Coupling Small-Particle Adsorbents with Membranes for Trace-Containment Removal in Water Treatment	47.RD	CBET-1236070	79,441
Critical Raindrop Characteristics: Fall Speed, Shape, and Size Distributions	47.RD	AGS-1144846	128,761
CSBR: Natural History: Expanding the footprint and the reach of the Clemson University Arthropod Collection	47.RD	1457909	151
CSR: EAGER: A Scalable and Efficient Resource Discovery System for Large-Scale Distributed Systems	47.RD	CNS-1249603	200,630
CSR: Large: Collaborative Research: Computational Jewelry for Mobile Health	47.RD	CNS-1314342	192,449
CSR: Small: Collaborative Research: An Architecture for the Emergency Retasking of Wireless Sensors Networks (ALERT)	47.RD	CNS-1116976	25,185
CSR: Small: Efficient and Reciprocal File Replication and Consistency Maintenance in Pervasive Distributed Computing	47.RD	CNS-0917056	51,734
Development of Performance-Based Design Guidelines for Integrating Phase Change Materials in Buildings	47.RD	CMMI-0927962	11,624
Digitization TCN: Collaborative Research: The Key to the Cabinets: Building and Sustaining a Research Database for a Global Biodiversity Hotspot	47.RD	EF-1410094	30,508
Dimensions: Collaborative Research: Functional Diversity of Chemosymbiosis in Lucinid Bivalves from Coastal Biomes	47.RD	DEB-1342763	27,103
DISSERTATION RESEARCH: Linking Genomics, Oceanography and Ecology in Understanding Adaptive Variation in Space and Time in Amphidromous Gobies of the Hawaiian Islands	47.RD	DEB-1310962	16,101
EAGER: An Efficient and Effective Distributed Information System	47.RD	IIS-1354123	22,905
EAGER: Coupled Optomechanical Resonators and Arrays	47.RD	ECCS-1331728	94,841

The accompanying notes are an integral part of this schedule.

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
EAGER: Developing a Framework for a Cyber-Infrastructure General Practitioner Program	47.RD	OCI-1251544	76,774
EAGER: Ecosystem Modeling for Infrastructure Evaluation	47.RD	ACI-1343033	110,537
EAGER: Novel Photoacoustic Sensor Using Piezoresistive GaN Microcantilever	47.RD	ECCS-1500007	33,102
EAGER: Prototype Tool for Visualizing Online Polarization	47.RD	IIS-1247198	76,246
EAGER: PXFS - A Persistent Storage Model for Extreme Scale	47.RD	CCF-1142905	15,340
EAGER: Report on International Data Exchange Requirements (RIDER)	47.RD	OCI-1223688	60,387
EAGER: Transcriptome Analysis of CHO Cells to Improve Productivity and Control Protein Aggregation	47.RD	CBET-1218345	73,496
EAGER: Building a Framework to Advance Research through Undergraduate Participation: Investigating pH in 3D Tissue Test Systems	47.RD	CBET-1451319	42,541
EAGER: Collaborative Research: SciWiNet: A Science Wireless Network for the Research Community	47.RD	CNS-1346632	58,355
EFRI-BSBA: Multifunctional Materials and Devices for Distributed Actuation and Sensing	47.RD	EFRI-0937985	23,371
EFRI-CBE: Emerging Frontiers in 3-D Breast Cancer Tissue Test System	47.RD	EFRI-0736007	29,695
EFRI-COPN: Neuroscience and Neural Networks for Engineering the Future Intelligent Electric Power	47.RD	EFRI-1238097	57,467
Emphasizing Core Calculus Concepts Using Biomedical Applications to Engage, Mentor and Retain STEM Students	47.RD	DUE-1044265	3,496
Enhanced Production of Advancing Biofuels Through Model Guided Synthetic Biology	47.RD	CBET-1437836	56,227
Evaluation of Nanoparticle Behavior During Transitions from Engineered to Natural Systems	47.RD	CMMI-1057633	15,007
Experimental and Modeling Study of Risk from Ember Storms	47.RD	CMMI-1200560	45,786
Experimental Investigation of Multiscalar Subgrid-Scale Mixing and Turbulence-Chemistry Interaction	47.RD	CBET-1333489	43,735
Exploiting Liquid-State Transduction Materials in Vibratory Energy Harvesting	47.RD	CMMI-1335049	123,222
Exploring Non-Normative Forms of Capital, Wealth and Knowledge Used by Engineering Students	47.RD	1463808	1,475
Extrapolating the Concept of Protein Corona for Understanding Nanoparticles at Large	47.RD	CBET-1232724	120,642
Fluorescent Polymer Nanoparticles for Nano-Imaging and Sensing	47.RD	CHE-1412694	8,654
Formation of Halonitromethanes and Nitrosamines During Ozonation in Drinking Water Treatment	47.RD	CBET-1066567	86,334
Fundamental Study of Carbon Dots for Fluorescence Bio-imaging/sensing	47.RD	CBET-0967423	43,408
GOALI: Low-Ash Lignin Biofuel from Black-Liquor Streams	47.RD	CBET-1236759	45,706
GOALI: Tuning Renewable Solvent Systems for Lignin Purification and Fractionation	47.RD	CBET-1403873	128,320
Graduate Research Fellowship	47.RD	DGE-1246875	(1,343)
Graduate Research Fellowship Program	47.RD	1246875	106,176
Graduate Research Fellowship Program	47.RD	DGE-1246875	159,346
Graduate Research Fellowship Program - Biofabrication of Cellular Microspheroids for Organ Printing	47.RD	DGE-1246875	1,331
Graduate Research Fellowship Program (GRFP)	47.RD	1246875	92,916
Graduate Research Fellowship Program: Use of Mobile Shaker for In Situ Liquefaction Resistance and Dynamic Behavior of Natural Sand Deposits Near Charleston	47.RD	DGE-1246875	623
Growth Rates of Bacterial Taxa in Coastal Marine Ecosystems	47.RD	OCE-1261359	268,960
GSE/RES: Impact of Single-Sex Public Educational Environments on Mathematics and Science Classroom Environment, Student Academic Performance, and Student Self-Concept	47.RD	HRD-1136248	95,302
Hilbert Spaces of Analytic Functions and Their Applications	47.RD	DMS-1304208	7,442
How Does the Plant Say-No More?: A Molecular Genetic Approach to Nodule Number Regulation	47.RD	IOS-1146014	168,419
I/UCRC CGI: I/UCRC for the Ceramic, Composite and Optical Materials Center	47.RD	IIP-1034979	112,179
I/UCRC FRP: Collaborative Research: The Physical Internet for a Sustainable Logistics Future - Advancing CELDi's Leadership Position	47.RD	IIP-1332007	19,827
I/UCRC: Collaborative Research: Center for Excellence in Logistics and Distribution, Phase II	47.RD	IIP-1266013	68,699
I-Corps Team: Ultra Dielectric Probes	47.RD	1539688	17,019
I-Corps: Advanced Optical Disdrometer for Precipitation Observations	47.RD	IIP-1449705	27,746
I-Corps: Novel Natural Antioxidants Extracted from Animal Blood	47.RD	IIP-1402387	1,764
I-Corps: A Novel Functional Shoulder Brace to Limit Dislocation	47.RD	IIP-1265279	4,285
II NEW: Infrastructure to Support Research in Network-Aware Data-Intensive Computing	47.RD	CNS-1405767	282,582
II-NEW: Robot Arms for Interactive Perception of Highly Non-Rigid Objects	47.RD	CNS-1305267	48,531
Impact of Nonmigrating Tides on the Thermospheric Energy Budget and Constituents	47.RD	AGS-1112704	68,583
Improved Methods for Incompressible Viscous Flow Simulation	47.RD	DMS-1112593	3,217
INSPIRE: Evaluating the Effect of Cyberinfrastructure on Universities Production Process	47.RD	SMA-1243436	166,379

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Instrument Development: Ultra-Sensitive, Single-Pass Electron Paramagnetic Resonance Spectrometers	47.RD	CHE-1152892	(964)
International Collaboration in Chemistry: Preparation and Utilization of SF5-Containing Building Blocks	47.RD	CHE-1124859	17,066
IUSE: EHR: Enabling Field Experiences in Introductory Geoscience Classes Through the Use of Virtual Reality	47.RD	1504619	8,121
Materials World Network: Switchable Polymer Interfaces for Bottom-Up Stimulation of Mammalian Cells	47.RD	DMR-1107786	142,311
Mathematics Partnering With Computer Science to Improve Calculus Instruction and Learning Mechanism for Heterogeneously Catalyzed Sugar Alcohol Reactions: Hierarchical Modeling and Experimental Studies	47.RD	DUE-0817442	38,161
Mechanisms of Fluid Feeding in Insects, from Nanoscale to Organism	47.RD	CBET-1438325	48,721
Modeling of the Subgrid-Scale Pressure-Strain-Rate Correlation in the Atmospheric Surface Layer	47.RD	IOS-1354956	50,126
Molecular Dynamics Simulations and Small Angle Neutron Scattering Studies of Light-Emitting Polymeric Nanoparticles	47.RD	AGS-1335995	122,211
MRI: Acquisition of High Performance Computing Instrument for Collaborative Data-Enabled Science	47.RD	CHE-1308298	65,031
MRI: Development of the Intelligent River (R), A Basin-Scale Monitoring Instrument	47.RD	CNS-1228312	66,110
Multimodal Membranes for High-Throughput Bioseparations	47.RD	CNS-1126344	257,170
Multi-Scale Fundamental Investigation of Sintering Anisotropy	47.RD	CBET-1159622	70,341
Network Target Coordination for Complex System Optimization	47.RD	CMMI-1502392	78,479
New Methods for Studying the Time-Dependent and Steady-State Behavior of Markov Chains	47.RD	CMMI-1129969	112,499
Novel Optical Hosts: chemistry, Single Crystal Growth and Applications	47.RD	CMMI-1435261	51,594
National Science Foundation Intergovernmental Personnel Act	47.RD	DMR-1410727	144,612
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	1523314	87,350
Numerical Approximations of Non-Newtonian Fluid Flows With Applications	47.RD	1258714	298,122
Numerical Methods for Non-Newtonian Fluid Structure Interaction Problems	47.RD	DMS-1016182	4,404
On a General Class of Count Time Series Models	47.RD	DMS-1418960	45,934
Optical Carrier Based Microwave Interferometry for Spatially Continuous Distributed Monitoring of Structural Health	47.RD	DMS-1407480	60,366
PFI: AIR Technology Translation - Functionalized III-V Nitride Based Microelectromechanical Sensors for Neutron Detection	47.RD	CMMI-1359716	1,114
Quantitative Structure-Adsorbability Relationships for the Adsorption of Organic Chemicals by Carbon Nanotubes	47.RD	IIP-1512342	43,313
RAPID: Impact of Earthquakes on the Electricity Infrastructure Technology	47.RD	CBET-0967425	38,799
RAPID: Inputs of Polycyclic Aromatic Hydrocarbon to Drinking Water Sources from the Yosemite Wildfire	47.RD	ECCS-1216298	1,733
RAPID: Response to the MTBE Spill, Port of Houston, Texas, March 2015	47.RD	CBET-1361678	28,950
RAPID: Responses of Different Tree Species to a Severe Ice Storm in the Southeastern United States	47.RD	1542727	15,563
REU Site: Interfaces and Surfaces: Exploring and Experiencing Science (I SEE Science)	47.RD	DEB-1442131	67,211
REU Site: Solid-State Devices for Electronics, Photonics, and Magnetics Technology	47.RD	DMR-1062873	566
REU Site: Undergraduate Research in Collaborative Data Visualization Applications	47.RD	EEC-1262991	95,432
REU Site: Data-Intensive Computing	47.RD	ACI-1359223	89,364
REU Site: Interfaces and Surfaces	47.RD	OCI-1263180	41,176
RI: Medium: Collaborative Research: Real-Time Continuum Manipulation	47.RD	1460863	46,866
RI: Small: Interactive Perception for Manipulating Non-Rigid Objects	47.RD	IIS-0904116	29,149
Role of Cell Volume Changes in Mechanotransduction of Hydrostatic Pressure	47.RD	IIS-1017007	34,805
Scalable Intelligent Power Monitoring and Optimal Control of Distributed Energy Systems Using Adaptive Critics	47.RD	CBET-1264579	83,326
Selenium Antioxidant Mechanisms: Metal Binding vs. Reactive Oxygen Species Scavenging	47.RD	ECCS-1308192	138,912
Self-Healing Photochromic Polymeric Coatings	47.RD	CHE-1213912	119,939
Semi Fluorinated Polymers: Forming Energy Controlled Responsive Interfaces	47.RD	CMMI-1332964	34,826
SHB: Small: An Assistive, Robotic Table [ART] Promoting Independent Living	47.RD	DMR-0907390	2,855
SHB: Type II (INT): Collaborative Research: Creating Learning Systems with Mobile Technology to Improve Perioperative Services	47.RD	IIS-1116075	44,329
SHF: Medium: Collaborative Research: Specification and Mathematics Engineering for the Verified Software End-Game	47.RD	IIS-1237077	153,244
	47.RD	CCF-1161916	23,446

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Short Course on Multi-Scale Computational Approaches for Simulating Polymers and Soft Matter: From Atomistic to Mesoscale	47.RD	DMR-1411174	800
SNM: Defect-Engineered Nanocarbons for Electrochemical Energy Storage	47.RD	CMMI-1246800	406,586
Southeast Number Theory Meetings	47.RD	DMS-1303254	3,327
Spider Orb-Web Inspired Cognitive, Fault-Tolerant Fiber Optic Sensor Network for SHM Under Harsh Conditions	47.RD	CMMI-1360664	31,551
Student Travel Scholarships for Telluride Science Research Meeting on Frontiers in Biomagnetic Particles IV, in Telluride CO June 23-26, 2015	47.RD	1462064	4,000
Supporting a Community Building Workshop in Computer Education Research	47.RD	DUE-1355395	20,003
Topics in Algebraic Geometry Codes	47.RD	DMS-1403062	24,297
Topics on Computational Algebra	47.RD	DMS-1005369	822
Transforming Robust Design Concept into a Novel Geotechnical Design Tool	47.RD	CMMI-1200117	110,833
TUES Type 1: Robots in Business and Society - A Hands-On Learning Experience	47.RD	DUE-1245250	16,716
Ultrasonic Particle Scrubbing With Drops	47.RD	1336632	78,235
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	92,131
Understanding the Macroscopic Dynamics of Ultrasonic Consolidation	47.RD	CMMI-1068977	9,525
Virtual Environment Interactions: Exploring Grounded Embodied Pedagogy in Support of Computational Thinking	47.RD	CNS-1344228	145,553
Pass-through programs from:			
BBN Technologies			
GENI WiMAX at Clemson	47.RD	1843A/PO# 9500011083	93,095
GENI WiMAX at Clemson - REU Supplement	47.RD	1843/PO#9500011083	14,706
GENI: Experimenting with Persistent Live Video Streaming Service	47.RD	14303/PO# 9500012170/1931B	45,246
Clemson University Research Foundation			
CAREER: Control of Processes Actuated with Mobile Radiant Sources	47.RD	CMMI-1055254	67,232
CAREER: Model-Based Control of Machining Processes and Scalability for Manufacturing System Control.	47.RD	CMMI-0954318	51,100
Collaborative Research: Pattern Transfer Nanomanufacturing with Magnetically-Recorded Nanotemplates	47.RD	CMMI-1130819	3,006
Synthesis-Microstructure-Performance Relations in Oxide Ceramic Scintillators	47.RD	DMR-1207080	130,375
Colorado State University			
NEESR-CR: NEESoft: Seismic Risk Reduction for Soft-Story Woodframe Buildings	47.RD	G-4948-2	17,392
Del Mar College			
Stamp project NSF DUE #			
Simulations to Support FAA Part 147 Aviation Maintenance Training	47.RD	1205021	22,699
Fayetteville State University			
Broadening Participation Research Project: Advancing Interest and Motivation (AIM) for STEM Careers	47.RD	NSF AIM for STEM Careers	12,861
Florida Atlantic University			
MRI - Development of the Intelligent River, A Basin-Scale Monitoring Instrument	47.RD	RJ85	91,532
Indiana University			
SHB: Small Privacy-Enhanced Technologies to Support Underserved Older Adults Age In Place	47.RD	BL-4848754-CLEM PO 1346972	34,885
TWC SBES: Medium: Collaborative: Crowdsourcing Security	47.RD	BL-4848775-CLEM PO#1346549	59,571
Lumany LLC			
STTR Phase I: Diode pumped Modelocked Titanium Sapphire Fiber Laser	47.RD		64,868
Macomb Community College			
An Investigation of the Effectiveness of Virtual Reality Based Simulations to Enhance Electrical Vehicle Safety Curriculum	47.RD	ATE-CAAT-01	34,980
Medical University of South Carolina			
Structure and Dynamics of the Spider Dragline Silk Assembly Process	47.RD	MUSC11-106	49,615
North Georgia College and State University			
Discovery Learning Projects in Statistics	47.RD	DUE-1021584-01	15,230
Northwestern University			
DMREF: Simulation-Driven Design of Highly Efficient MOF/ Nanoparticle Hybrid Catalyst Materials	47.RD	SP0023246-PROJ0006614	61,745
Pennsylvania State University			
REU: Participant Support TRPGR: Comparative Genomics of Environmental Stress Responses in North American Hardwoods	47.RD	4730-CU-NSF-5974	8,023

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National Science Foundation, continued			
Pass-through programs, continued:			
TRPGR: Comparative Genomics of Environmental Stress Responses in North American Hardwoods Purdue University	47.RD	4375-CU-NSF-5974	63,614
Characterizing and Modeling the Experience of Transfer Students in Engineering South Carolina State University	47.RD	4101-38563	63,297
Louis Stokes Alliance for Minority Participation Program (SCAMP) - Year One	47.RD	13-581099-SCAMP-CU-SC	56,518
A Partnership in Observational and Computational Astronomy (POCA) The Ohio State University	47.RD	08-586009-BAPS-CU-SC	45,912
GOALI: Aging Propagation & Model Based Prognosis for Interconnected Systems University of California Davis	47.RD	60041737 (RF01359641)	15,000
Geoinformatics: Facility Support: Computational Infrastructure for Geodynamics University of North Carolina - Chapel Hill	47.RD	200911281-06	78,552
Statistical and Applied Mathematical Sciences Institute University of San Diego	47.RD	5037064	20,892
Collaborative Research: Military Veteran Students' Pathways in Engineering Education University of South Carolina	47.RD	140065-U2015-001	759
The South Carolina Project for Organ Biofabrication - Bioprinting Pre-Vascularized Tissue Engineering Constructs	47.RD	15-2838 22410-Z142	4,429
The South Carolina Project for Organ Biofabrication - Research Infrastructure Improvement (RII) Track Grant University of Tennessee	47.RD	13-2357 22410-Z117 PO#52297L	149,599
MIDGE: A Collaborative Effort to Increase Taxonomic Expertise in Understudied Families of Nematocerosus Diptera University of Texas Austin	47.RD	8500012914	(1,294)
Campus Bridging for Stamped Sequencing a Reference-grade Genome of the Domesticated Allotetraploid Cotton University of Utah	47.RD	UTA13-000068	62,653
CloudLab: Flexible Scientific Infrastructure to Support Fundamental Advances in Cloud Architectures and Applications University of Washington	47.RD	UTA15-000467 (1444552)	19,065
CREATIV:Tools, Models and Innovation Platforms for Research on Social Media VentureWell	47.RD	7425278	41,009
Pathways to Innovation Program Washington State University	47.RD	123507_G003405	1,800
CF21 DIBBS Tripal Gateway: Platform for Next Generation Data Analysis and Sharing Washington University	47.RD	WU-12-243 PO# 2917766T	39,036
Gordon Research Conference on Visualization in Science and Education	47.RD		400
Total National Science Foundation			<u>17,471,233</u>
Department of Veterans Affairs			
Nanoparticle Coupled Antioxidants for Respiratory Illness in Veterans	64.RD	VA 247-P-1705 PO#534-D47000	7,491
Total Department of Veterans Affairs			<u>7,491</u>
Environmental Protection Agency			
Defining Significant Nexus with Navigable Waters for Small, Relatively Isolated Wetlands in the Piedmont Ecoregion	66.RD	CD95488711	5,034
Dendritic Polymers as Biocompatible Dispersants for Oil Spill Remediation	66.RD	RD-83518201	129,567
Partnerships for Sustainability: P2 Education and Assessment	66.RD	NP00D22514	14,067
Pass-through programs from:			
North Carolina State University			
Achieving New Milestones For Stormwater Runoff Reductions in Black Creek Watershed	66.RD	2012-2709-01	5,614
William Marsh Rice University			
EPA/STAR - Environmental Impact of Nanox	66.RD	R16992	31,739
Total Environmental Protection Agency			<u>186,021</u>

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Nuclear Regulatory Commission			
Clemson University Nuclear Engineering and Radiological Sciences Scholarship Program	77.RD	NRC-HQ-84-14-G-0021	24,736
Junior Nuclear Environmental Engineering and Science Faculty Support	77.RD	NRC-38-10-921	96,331
Probabilistic Risk Assessment Faculty Development in Nuclear Engineering and Science Program at Clemson University	77.RD	NRC-HQ-13-G-38-0002	159,517
US NRC Fellowship Grant at Clemson University	77.RD	NRC-HQ-12-G-38-0016	12,867
Total Nuclear Regulatory Commission			293,451
Department of Energy			
A New Paradigm for Understanding Multi Phase Ceramic Waste Form Performance	81.RD	DE-NE0008260	113,933
Asymmetric Hybrid Nanoparticles (AHNs)	81.RD	DE-FG02-06ER46342	2,548
Alternative Sample Loading Preparation for Thermal Ionization Mass Spectrometry	81.RD	DE-NA0001735	233,958
Characterizing and Interpreting the In Situ Strain Tensor During CO2 Injection	81.RD	DE-FE0023313	106,753
Clemson University's Solar Decathlon 2015: A Techno-Local Solar House for South Carolina	81.RD	DE-EE0006559	2,148
Clemson University's Synchrophasor Engineering Education Program (CU-ShEEP)	81.RD	DE-OE0000660	141,405
Examination of Actinide Chemistry at Solid-Water Interfaces to Support Advanced Actinide Separations	81.RD	DE-SC0010355	172,818
First-Principles Calculation of Vibrational Mode in Complex Materials	81.RD	DE-SC0008487	112,669
From Interfaces to Bulk: Experimental - Computational Studies Across Time and Length Scales of Multi Functional Ionic Polymer	81.RD	DE-SC0007908	182,864
Lower Length Scale Characterization and Validation of Formation and Stability of Helium Bubbles in Nano-structured Ferritic Alloys Under Irradiation	81.RD	DE-NE0000728	67,155
Novel High Temperature and Radiation Resistant Infrared Glasses and Optical Fibers for Sensing in Advanced Small Modular Reactors	81.RD	DE-NE0000727	229,809
Proof of Feasibility of Using Well Bore Deformation As A Diagnostic Tool To Improve Co2 Sequestration	81.RD	DE-FE0004542	137,077
Radionuclide Waste Disposal: Development of Multi-scale Experimental and Modeling Capabilities	81.RD	DE-SC0012530	682,315
Rigid Nanostructured Organic Polymer Monolith for In Situ Collection and Analysis of Plant Metabolites from Soil	81.RD	DE-SC0010832	47,444
Pass-through programs from:			
Battelle			
R&D of the Liquid-Sampling Atmospheric-Pressure Glow Discharge (LS-APGD)	81.RD	228064	35,164
Battelle Energy Alliance, LLC			
Precursor Derived Nanostructured Si-C-X Materials for Nuclear Applications	81.RD	00145027	67,721
Predictive Maturity of Multi-Scale Simulation Models for Fuel Performance	81.RD	00101999	111,593
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	21,521
Fluoropolymers, Electrolytes, Composites and Electrodes	81.RD	DE-FG02-05ER15718	89,588
GATE Center of Excellence in Sustainable Vehicle Systems	81.RD	DE-EE0005571	135,458
Quantification of Cation Sorption to Engineered Barrier Materials Under Extreme Conditions	81.RD	120716	248,840
Stabilization of Pu Surface Complexes on Mineral Colloids by Natural Organic Matter	81.RD	B597372	38,769
Lawrence Livermore National Laboratory			
Stabilization of Pu Surface Complexes on Mineral Colloids by Natural Organic Matter	81.RD	B610134	56,681
Los Alamos National Laboratory			
Advanced Storage - High Performance File System Research	81.RD	238866-1	124,110
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	36,412
Louisiana State University			
Computational Catalysis and Atomic-level Synthesis of Materials: Building Effective Catalysts from First Principles	81.RD	41924	5,608
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	109,499
Micro-Structured Sapphire Fiber Sensors for Simultaneous Measurements of High Temperature and Dynamic Gas Pressure in Harsh Environments	81.RD	00026229-02 (00045401 - Hai-Lung Tsai)	9,844
Robust Ceramic Coaxial Cable Down-Hole Sensors for Long-Term in Situ Monitoring of Geologic CO2 Injection and Storage	81.RD	00046435-01	359,763

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Energy, continued			
Pass-through programs, continued:			
MWH Americas, Incorporated			
Laboratory Evaluation of Biostimulation to Treat Chlorinated Ethenes in the Chatsworth Formation, Santa Susana Field Laboratory, Ventura Co., CA	81.RD	S10504105-101050-OF // MWH Job Number 10506443	11,566
Robert Bosch, LLC			
Recirculated Exhaust Gas Intake Sensor (REGIS) Enabling Cost-Effective Fuel Efficiency Improvement	81.RD	DE-EE0005975-001	190,314
Sandia National Laboratories			
Biaxial Orientation Studies of Nitrated PET-based films	81.RD	1553215	4,038
Sandia Small Grant	81.RD	1556303	4,477
SCURF			
Anion Exchange Membranes Application	81.RD	B139012	31,343
ARML Imaging Instrument Access	81.RD	B139003	8,833
Ceramic Materials Synthesis and Characterization	81.RD	B139015	27,070
Ceramic Materials Synthesis and Characterization	81.RD	B139010	42,990
Examination of the Electrical Properties of Micro- and Nano-Scale Properties in Weak Electrostatic Fields	81.RD	B139002	69,679
Fabrication and Characterization of Graphene Membranes	81.RD	B139021	31,746
Implement On-Line or In-Line Process Technology for Analysis of Measurement Radiation Detection Research and Development in Accordance with SOW No. G-SOW-A-01422, REV. 0	81.RD	B139019	25,417
SRNL-Graduate Course on Nuclear Safeguards	81.RD	B139005	2,917
SRNS SCM Asset Management Operational Improvements	81.RD	B139009	131,394
SRR Technical Support Provided by Clemson University	81.RD	SRRA001	51,062
SRR Technical Support Provided by Clemson University	81.RD	SRRA002 // TOA# SRRA042328	76,589
Support on Performance and Limitations of Electron Backscatter Diffraction	81.RD	B139007	19,165
Tritium Supply Chain Modeling & Analysis	81.RD	B139020	41,787
University of Cincinnati			
Robust Metal-Ceramic Coaxial Cable Sensors for Distributed Temperature Monitoring in Fossil Energy Power Systems	81.RD	009170-002 PO#4500082057	10,489
University of Minnesota			
Energy Frontier Research Center for Inorganometallic Catalyst Design	81.RD	A004527501	83,570
University of South Carolina			
A Novel Intermediate-Temperature Bifunctional Ceramic Fuel Cell Energy System	81.RD	15-2796 15540 FC77/PO#91865L	22,511
University of Washington			
TA(A) Precursor-Derived Nanostructured Si-C-X Materials from MHD Electrode Application	81.RD	763094	38,432
US Automotive Materials Partnership LLC			
Development of Advanced Steel for Lightweight Vehicles	81.RD	13-2825-AMP	235,958
UT-Battelle, LLC			
R&D Building Reliable Data Transfer Tool	81.RD	4000108178	20,238
Wireless Power Transfer (WPT) and Charging of Plug-In Electric Vehicles	81.RD	4000119528 4000127400 / Vendor #	254,348
Robust Network Fusion Algorithms for Detection and Localization of Radiation Sources	81.RD	0000062498	52,818
Total Department of Energy			5,190,350
Department of Education			
Graduate Fellowships in Electrical and Computer Engineering	84.RD	P200A120224-13	139,337
Graduate Training in Engineering and Managing Resilient and Sustainable Civil Infrastructure	84.RD	P200A120222-14	312,856
Pass-through programs from:			
Iowa State University			
Professional Development for Algebra Progress Monitoring	84.RD	432-28-07	21,446
SC Commission on Higher Education			
Improving Middle Grades Teacher Quality through the Clemson Mathematics Institute and Video Club	84.RD	ITQ FY2013-14	56,390
Project HOMES: Hands-On, Making Science	84.RD		34,454
Project RES: Reform-Based Environmental Science - ITQ FY 2015-16	84.RD	ITQ 2015-16	19,405
The Clemson Integrated Mathematics and Science Technology Institute - ITQ FY2013-14	84.RD	ITQ FY2013-14 Supplemental Grants Summer 2014	66,505

The accompanying notes are an integral part of this schedule.

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Education, continued			
Total Department of Education			650,393
Vietnam Education Foundation			
Vietnam Education Foundation Fellowship	85.RD		1,256
Total Vietnam Education Foundation			1,256
Department of Health and Human Services			
A Multi-Level, Cohort-Sequential Study of Rural Adolescent Dating Violence Victimization and Perpetration	93.RD	5R01HD067505-03	464,070
Adaptive Wavefront Generation and Correction for Super-high Resolution Microscopy	93.RD	7R21GM104683-02	76,328
Biomechanical Characterization and Modeling of Human TMJ Disc - Fellowship	93.RD	5F31DE023482-02	28,321
Cardiac-Cell Mechanics at the Single-Cell Level: Properties & Interactions	93.RD	5K25HL092228-04	9,572
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20GM103444-07	2,141,626
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20GM103444-07	31,162
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20GM103444-07	18,419
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20GM103444-07	24,400
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20GM103444-07	10,480
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20GM103444-07	21,637
DelPhi: Software for Electrostatic Modeling of Biomolecules	93.RD	5R01GM093937-05	307,537
Does Arsenic Target Border Specific Cells During Embryogenesis?	93.RD	5R03ES023065-02	69,447
Elastin-derived Scaffolds for Tissue Engineered Small Diameter Vascular Grafts	93.RD	5R03TW008941-02	45,811
Embryonic Arsenic Exposure Impacts Satellite Cells	93.RD	1R03ES023930-01A1	15,437
High-Performance Membrane Chromatography for Protein Purification	93.RD	1R15GM094676-01	14,628
Integrating Biomechanics & Cell Biology to Understand TMJ Pathology	93.RD	5R01DE021134-04	388,738
Investigating Mechanism of Intracellular Rotational Transport with Optical T	93.RD	1R15EB014560-01A1	72,363
Investigation of Effective Training of "promotoras" in Oral Rehydration Therapy	93.RD	1R03NR013228-01A1	13,935
Label Free RF Imaging of Cell Membrane Heterogeneity in Liquid	93.RD	5K25GM100480-03	180,071
Microfabricated Coculture Model: Myocyte Rescue by TNT-Transfer Mitochondria	93.RD	1R01HL124782-01	317,864
Naturally Occurring Dog Model for Juvenile Dermatomyositis	93.RD	1R15AR062868-01A1	158,051
Nutrient Sensing and Hexokinases in T. brucei	93.RD	2R15AI075326-02 revised	104,247
pH and Glucose Sensing in Trypanosoma Brucei Glycosomes	93.RD	5R21AI105656-02	81,488
Phage Display Selection of Antiangiogenic CMG2 Cyclic Peptide Antagonists	93.RD	1R21EY024734-01	111,238
Predicting the Toxicity of Nanomaterials by a Transforming Protein Corona	93.RD	1R15ES022766-01A1	63,029
Probe Identification by HTS for Plasmodium Falci-parum Hexokinase	93.RD	1R03HD081723-01	1,455
Role of Mei5-Sae3 in Meiotic Homologous Recombination	93.RD	5R01GM098510-03	194,508
Stress Induced Control of Protein Translation in Entamoeba Histolytica	93.RD	1R03AI107950-01A1	55,003
Telluride Science Research Meeting on Frontiers in Biomagnetic Particles IV	93.RD	1R13EB020516-01	6,000
The Role of CAR and PXR in Gender Predominant P450 Expression and Induction	93.RD	2R15ES017321-02	125,563
Tissue Engineered Aortic Heart Valves: Scaffolds & Stem Cells	93.RD	5R01HL093399-04	44,722
Tissue Engineered Repair of Cranial Facial Muscle	93.RD	5F31DE022224-02	41,174
Undergraduate Education and Device Innovation Through Clinical and Translational	93.RD	1R25EB016589-01A1	34,218
Using Context to Validate and Improve Wrist-Tracking	93.RD	1R01HL118181-01A1	39,779
Pass-through programs from:			
Bite Technologies, LLC			
Assessing the Bite Counter as a Tool for Food Intake Monitoring: Phase II	93.RD	CU-02	149,416
Cell & Tissue Systems, Incorporated			
Cartilage Storage Solution for Chondrocyte Viability and Biomaterial Preservation	93.RD	1R43AR064033-01	1,693
Greenville Health System			
Evaluation Birth and Maternal Outcomes of SC Centering Pregnancy Expansion Project	93.RD	A201510666A // Grant # G001615	34,309
Neonatal Abstinence Syndrome: Analysis of Cost, Safety, and Efficacy of a Palliative			
Approach to Treating Narcotic-Dependent Newborns	93.RD	A20161164A-01GHS // G001215	220,950
Medical University of South Carolina			
Delaware CTR Program: A Virtual Environment for Stroke Rehabilitation	93.RD	MUSC14-022	24,925
Methods for Retrospective Multi-Site Research	93.RD	MUSC12-046	62,085
Missouri University of Science and Technology			
Development of a Novel Multi-functional Single Cell Analyzer	93.RD	00044240-01	26,520
NUBAD, LLC.			
A Rapid Assay for RNA Targeted Drugs	93.RD	2013000548; F-Neo II (5R42GM097917-03)	116,651

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RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Health and Human Services, continued			
Pass-through programs, continued:			
Development of Peptide Antibiotic Nucleic Acids Rutgers, The State University of New Jersey	93.RD	Prime # 5R41A1114114-02	99,809
Multiscale Molecular Modeling as Guide for Bioactive Polymer Design Optimization	93.RD		8,349
RESBIO: The Technology Resource for Polymeric Biomaterials	93.RD	437075/5347 PO# S2063296	87,838
South Carolina Department of Social Services ICSS Employment and Training	93.RD	Task Order #4	1,395,527
South Carolina Department of Agriculture South Carolina Farm to School Evaluation	93.RD		6,811
South Carolina Farm to School Evaluation	93.RD	P16010CPPW11/ FR #4000028282	8,582
University of Colorado - Denver Nanoparticle Protein Corona Structural Changes and Immunoreactivity	93.RD	FY15.714.001/2-5-55932	21,721
University of South Carolina Increasing Dietary Self-Monitoring and Weight Loss in an mHealth Intervention	93.RD	15-2826 11570-FB22	9,628
Palmetto State Geriatric Education Center	93.RD	PO#91635(18190-FJ33)/15-2753	20,644
South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE)	93.RD	22050-Z172/PO#81534	11,555
South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE)	93.RD	22050-Z180	194,000
South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) - Use of High Throughput Sequencing to Understand Protein Evolution	93.RD	15-2740 (18060-FB05)/PO #91570	576
South Carolina INBRE Program: Postdoctoral Academic Career Development Scholar Agreement	93.RD	15-2787 18020-FB29/PO#91797	36,545
University of South Florida Sunshine Education Research Center	93.RD	6402-1074-03-D	12,294
University of Texas Austin A Novel Approach for the Design and Development of Valvular Replacement Biomaterials	93.RD	UTA12-000570	62,177
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	14,548
Widmeyer Communications Phase V, Option Year III (previously Option Year II) of HRSA's Bullying Prevention Campaign	93.RD		77,796
Total Department of Health and Human Services			<u>8,017,270</u>
Department of Homeland Security			
Pass-through programs from:			
Federal Alliance for Safe Homes College Education for Building Codes: Current Status and Best Practices	97.RD		15,000
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#82368	84,176
Total Department of Homeland Security			<u>99,176</u>
United States Agency for International Development			
Pass-through programs from:			
Various Federal Sponsors Subcontract SG-R-IR1426-7 m00	98.RD	SG-R-IR1426-7 m00	27,615
Virginia Polytechnic Institute Building Local Capacity in IPM Solutions	98.RD	451071-19244	69,291
Ecologically-Based Participatory IPM-SE Asia	98.RD	425976-19244	217,199
Total United States Agency for International Development			<u>314,105</u>
Central Intelligence Agency			
Ear Feature Analysis, Extraction Tools, and Classification for Improved Recognition	99.RD	2011-11071400004	100,211
Total Central Intelligence Agency			<u>100,211</u>
Total Research and Development Cluster			<u>54,006,970</u>

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Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grantor's/Pass-Through Grantor's Number	Expenditures
STUDENT FINANCIAL ASSISTANCE CLUSTER			
Department of Education			
Federal Supplemental Educational Opportunity Grants	84.007		288,022
Federal Work Study Program	84.033		659,983
Federal Work Study Program - Federal Job Location and Development	84.033		50,000
Federal Perkins Loan Program Federal Capital Contributions	84.038		908,558
Federal Pell Grant Program	84.063		13,346,020
Federal Direct Student Loans	84.268		<u>89,539,053</u>
Total Department of Education			<u>104,791,636</u>
Total Student Financial Assistance Cluster			<u>104,791,636</u>
SNAP CLUSTER			
Department of Agriculture			
Pass-through programs from:			
South Carolina Department of Social Services			
SCDSS SNAP Outreach Grant	10.561	4400009903	93,769
SNAP-ED Nutrition Education and Obesity Prevention Grant	10.561	44400009904	147,800
SNAPOCUP-SNAP Outreach Community-University Partnerships	10.561	4400007572	135,790
Supplemental Nutrition Assistance Program (SNAP-ED) for Clemson University	10.561	5000013900	<u>99,233</u>
Total Department of Agriculture			<u>476,592</u>
Total SNAP Cluster			<u>476,592</u>
HIGHWAY PLANNING AND CONSTRUCTION CLUSTER			
Department of Transportation			
Pass-through programs from:			
South Carolina Department of Transportation			
State Work Zone Safety Training Program	20.205	CBSA-002	15,334
Transportation Technology Transfer Service (T3S)	20.205	1671; Proj No. 88P028095A0M560	189,960
Transportation Technology Transfer Service (T3S)	20.205	1630; Proj No. 88L56EP026860	178,632
Total Department of Transportation			<u>383,926</u>
Total Highway Planning and Construction Cluster			<u>383,926</u>
SPECIAL EDUCATION CLUSTER			
Department of Education			
Pass-through programs from:			
South Carolina Department of Education			
Project CREATE: Center for ReEducation and Advancement of Teachers in Special Education	84.027	14CO302-01	270
Project CREATE: Center for ReEducation and Advancement of Teachers in Special Education	84.027	15CO302-01	<u>14,740</u>
Total Department of Education			<u>15,010</u>
Total Special Education Cluster			<u>15,010</u>
OTHER PROGRAMS			
Department of Agriculture			
2014 Farm Bill- Producer Education- Clemson University Extension Service	10.UNK	58-0510-4-056 N	500
CEAH-Disease Spread Modeling Data Deidentification Support	10.UNK	13-9208-0328-CA	4,989
The Planning for Growth and Open Space Conservation Webinar Series	10.UNK	13-CS-11083150-028	11,028
Animal Disease Traceability	10.025	14-9745-1175-CA	95,059
Animal Disease Traceability	10.025	15-9745-1175-CA	230
Animal Health Surveillance and Response Activities	10.025	14-9745-1276-CA	293,656

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OTHER PROGRAMS			
Department of Agriculture, continued			
Animal Health Surveillance and Response Activities	10.025	15-9745-1276-CA	16,134
Building Screening Capacity for Plant Pathogenic Phytoplasmas for the CAPS Program	10.025	14-8130-0242-CA	18,801
Building Screening Capacity for Plant Pathogenic Phytoplasmas for the CAPS Program	10.025	13-8130-0242-CA	4,977
CAPS - Pests of National Concern	10.025	15-8245-0380-CA	10,942
CAPS - Tier 1 and Pests of National Concern	10.025	14-8245-0380-CA	61,378
CAPS - Tier I	10.025	15-8245-0380-CA	29,754
Emerald Ash Borer National Survey	10.025	14-8245-0648-CA	45,775
Emerald Ash Borer Survey	10.025	15-8245-0648-CA	21,660
Farm Bill - Junior Invasives Inspectors	10.025	13-8245-0907-CA	15,285
Farm Bill - Stone Fruit Survey	10.025	13-8245-0891- CA	13,632
Farm Bill - Thousand Cankers/Walnut Twig Beetle Survey	10.025	15-8245-0964-CA	3,716
Farm Bill Forest Pest Outreach	10.025	14-8245-1006-CA	36,299
Farm Bill Honey Bee National Survey	10.025	15-8245-0829-CA	1,373
Farm Bill- Honey Bee Survey	10.025	13-8245-0829-CA	5,868
Farm Bill Junior Invasive Inspectors	10.025	14-8245-0907-CA	43,713
Farm Bill- Solanaceous Commodity (Tomato) Survey	10.025	15-8245-1048-CA	1,831
Farm Bill- Stone Fruit Commodity Survey	10.025	15-8245-0891-CA	1,878
Farm Bill Thousand Cankers Survey	10.025	14-8245-0964-CA	18,780
Imported Fire Ant	10.025	14-8245-0178-CA	28,033
Imported Fire Ant	10.025	15-8245-0178-CA	23,966
NAHLN LIMS Integration	10.025	14-9419-0095-CA	59,238
NAHLN Member Lab Assistance	10.025	14-9419-0164-CA	55,000
National Animal Health Network, Laboratory Management Systems Infrastructure	10.025	15-9419-0095-CA	2,248
Slow Sand Filtration System for P. ramorum Phase 4	10.025	14-8245-0794-CA	2,750
Swine Enteric Coronavirus Disease	10.025	14-9745-1304-CA	18,235
Witchweed	10.025	14-8245-0028-CA	13,010
Witchweed	10.025	15-8245-0028-CA	263
Bundling of Culinology, Nutrition and Packaging in Undergraduate Applied Niche Research	10.217	2012-70003-19969	48,731
Technical College Scholars for Food Science Careers	10.220	2012-38413-19411	(236)
Public Health Data Communications Infrastructure System	10.475		3,549
SC Meat Inspection- Cross Utilization FY2015	10.475	Cross Utilization FY2015	173,079
South Carolina Meat-Poultry Inspection Department - (All Other)	10.475	BASE14 (12-37-A307)	70,004
South Carolina Meat-Poultry Inspection Department - (Compliance)	10.475	BASE14 (12-37-A307)	33,053
South Carolina Meat-Poultry Inspection Department - (In-Plant)	10.475	BASE14 (12-37-A307)	290,658
South Carolina Meat-Poultry Inspection Department - (Laboratory)	10.475	BASE14 (12-37-A307)	3,549
South Carolina Meat-Poultry Inspection Department - Cross Utilization	10.475	Cross Util 12-37-A-427	146,750
South Carolina Meat-Poultry Inspection Department- (All Other)	10.475	BASE15 (12-37-A307)	212,852
South Carolina Meat-Poultry Inspection Department- (Compliance)	10.475	BASE15 (12-37-A307)	89,086
South Carolina Meat-Poultry Inspection Department- (In-Plant)	10.475	BASE15 (12-37-A307)	777,359
South Carolina Meat-Poultry Inspection Department- (Laboratory)	10.475	BASE15 (12-37-A307)	17,806
South Carolina Meat-Poultry Inspection Department (PHDCIS/FAIM14)	10.475	FAIM14 (12-37-A307)	1,157
A Coordinated Program of Extension IPM Training in South Carolina to Advance Stakeholder Adoption in Key Commodities	10.500	2013-41534-21058	46,613
A Social Ecological Approach to Encourage and Assist Residents to Eat Smart and Move More in Rural Colleton County	10.500	2014-46100-22343	116,584
Clemson Sustainable Community Project	10.500	2013-41520-21027	74,572
		2014-41100-04100; 2015-41100-04100; 2015-41310-04100; 2015-41300-04100; 2015-41510-04100;	
Cooperative Extension Service - Smith Lever	10.500	2015-46000-04100	6,309,769
Web Based Nutrition Education and Evaluation Reporting System (webNEERS)	10.500	2012-41510-20085	178,416

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OTHER PROGRAMS, Continued			
Department of Agriculture, continued			
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	62,953
Demonstration of Innovative Water Conservation Technologies to Enhance Resilience to Drought While Optimizing Farm Profits	10.912	69-3A75-13-88	76,914
Pass-through programs from:			
South Carolina Forestry Commission			
Forest Pests Detection and Education and Cogongrass Detection, Education, and Eradication Project	10.UNK		57,617
North Carolina State University			
Quantifying the Multiplier Effect: What Sustainable Local Food Systems Can Mean to Local Communities	10.215	2012-1136-01	(291)
University of Georgia			
Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education Professional Development (PDP) Program	10.215	RD309-129/5054766	9,119
Sustainable Agriculture Research & Education (SARE) Program - CH 1	10.215	RD309-125/4940966	6,469
University of Florida			
Southern Plant Diagnostic Network	10.304	UFDSP00010248 (formerly UF12230)	24,973
Purdue University			
Stronger Economies Together: USDA RD Cooperative Agreement RBS-10-39	10.350	8000058198	1,637
University of Florida			
Annie's Project Risk Management Training for Farm Women in Florida, Alabama, South Carolina and Georgia	10.460	UFDSP00010504	7,072
Kansas State University			
2014 4-H Military Partnership Grant	10.500	S14070	18,870
2014 DoD Deployment Support Camp Grant	10.500	S14126	12,711
2015 DoD Child and Youth Reintegration Support Camps	10.500	S15135	20,336
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	384
Pennsylvania State University			
AMS Grant Writing Workshop and Technical Assistance	10.500	5154-CU-USDA-2628	4,697
Purdue University			
DOD/USDA Extension Military Partnership overall Leadership	10.500	8000059377	108,377
University of Georgia			
Sustainable Agriculture Research & Education (SARE) Professional Development Program CH 3	10.500	RE675-171/4944706	7,426
Total Department of Agriculture			<u>9,972,616</u>
Department of Defense			
South Carolina Operation: Military Kids (OMK)	12.UNK	NAFBA1-13-M-0190	1,134
South Carolina Operation: Military Kids (OMK)	12.UNK	NAFBA1-13-M-0339	59,911
Total Department of Defense			<u>61,045</u>
Department of the Interior			
Akers Mill Point Cloud Scanning and Structural Evaluation	15.945	P13AC00294	3,299
The Open Parks Grid Project Part III	15.945	P14AC01735	40,887
Pass-through programs from:			
South Carolina Department of Archives & History			
Preserving Pompion Hill Chapel Towards Digital Approaches to Monitoring Historic Structures	15.904		1,560
Total Department of the Interior			<u>45,746</u>

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OTHER PROGRAMS, Continued			
Department of Justice			
Pass-through programs from:			
National 4-H Council			
National Mentoring NMPIV (FY13)	16.726	2013-OJJDP-NMPIV-441	124,944
National Mentoring Program Year 5	16.726	2014-OJJDP-NMPV-541	67,363
Total Department of Justice			<u>192,307</u>
Department of State			
Pass-through programs from:			
International Research & Exchanges Board			
Clemson University International Leaders in Education Program	19.408	FY14-ILEP-Clemson-01	(159)
Clemson University International Leaders in Education Program 2015	19.408	FY15-ILEP-Clemson-01	180,695
Total Department of State			<u>180,536</u>
Department of Transportation			
Pass-through programs from:			
South Carolina Department of Transportation			
State Work Zone Safety Training Program	20.UNK	PO #369014/377336	232,293
Total Department of Transportation			<u>232,293</u>
National Endowment for the Arts			
Pass-through programs from:			
South Arts			
2014 - 2015 Southern Circuit Film Festival	45.025	4754	2,000
Total National Endowment for the Arts			<u>2,000</u>
National Science Foundation			
Collaborative Research: Computational Intelligence Methods for Dynamic Stochastic Optimization of Smart Grid Operation with High Penetration of Renewable Energy			
	47.041	ECCS-1232070	68,670
Broadening Participation in Visualization (BPViz) Workshop			
	47.070	ACI-1419415	41
EAGER: The LIT ROOM - A Networked Suite of Architectural-Robotic Artifacts Embedded in the Library for Advancing Literacy in Children			
	47.070	IIS-1352992	132,536
Southeastern Regional Noyce Conference			
	47.076	DUE-1062155	6,587
Tigers Teach Noyce Scholarship			
	47.076	DUE-1136293	254,824
Total National Science Foundation			<u>462,658</u>
Small Business Administration			
Pass-through programs from:			
University of South Carolina			
Small Business Administration 2013 Carry Over Funding	59.037	SBA 2013 Carry Over	17,582
Small Business Development Center - Operating Grant (Federal)	59.037	Federal	55,550
Small Business Development Center - Operating Grant (Federal)	59.037	Federal	313,565
Total Small Business Administration			<u>386,697</u>
Environmental Protection Agency			
2014-2016 Certification and Training Pesticide Programs Cooperative Agreement			
	66.700	E-98463814	121,281
2014-2016 Special Programs Pesticides			
	66.700	E-98463714	161,169
614.2014-2016 Enforcement Pesticide Programs Cooperative Agreement			
	66.700	E-98463614	183,809
Pass-through programs from:			
Commonwealth of Virginia			
Animal Waste Analysis for the Commonwealth of Virginia	66.460	319-2013-P02V	41,556
Community Environmental Company (CEC)			
Graniteville Mill-Community Development & Improvement Corporation	66.818	2014000366	12,400
Total Environmental Protection Agency			<u>520,215</u>

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OTHER PROGRAMS, Continued			
Department of Energy			
Department of Energy for CETL	81.087		9,791
Department of Energy for Grid Simulator	81.087		17,945
Pass-through programs from:			
Southeastern Coastal Wind Coalition			
Southeast Wind Energy Regional Resource Center	81.UNK		9,998
Total Department of Energy			37,734
Department of Education			
Exemplary Personnel for Education, Research, and Teaching in Special Education (EXPERTISE)	84.325		14,921
National Dropout Prevention Center for Students with Disabilities	84.326		421,960
Pass-through programs from:			
South Carolina Department of Education			
Agricultural Education Professional Development	84.UNK	4000028303	1
Agricultural Education Professional Development	84.UNK	4000029631	54,638
South Carolina Department of Education			
Cherry Grove FFA Camp Caretaker	84.048	14VA302-42	7,518
Cherry Grove FFA Camp Caretaker	84.048	15VA302-42	10,378
South Carolina Department of Education			
21st CCLC Bridge Project at Cedar Grove Elementary School, LaFrance Elementary School, Pendleton Elementary School, and Townville Elementary School	84.287	13CL302-92	11,222
21st CCLC Bridge Project at Spearman Elementary School and West Pelzer Elementary School	84.287	13CL302-90	11,384
21st Century Community Learning Center Bridge Project at Cedar Grove Elementary School, Palmetto Elementary School, LaFrance Elementary School, Pendleton Elementary School, and Townville Elementary School	84.287	15CL302-92	784
21st Century Community Learning Grant: Cedar Grove Elementary School, LaFrance Elementary School, Pendleton Elementary School and Townville Elementary School - GoalPOST II (Goal-oriented Performance in Out of School Time)	84.287	14CL302-02	4,641
21st Century Community Learning Grant: Cedar Grove Elementary School, Palmetto Elementary School, LaFrance Elementary School, Pendleton Elementary School and Townville Elementary School -GoalPOST (Goal-Oriented Performance in Out of School Time)	84.287	15CL302-40	257,608
21st Century Community Learning Grant: Spearman Elementary School & West Pelzer Elementary School - GoalPOST III (Goal-Oriented Performance in Out of School Time)	84.287	15CL302-20	113,662
21st Century Community Learning Grant: Spearman Elementary School & West Pelzer Elementary School-GoalPOST III (Goal-Oriented Performance in Out of School Time)	84.287	14CL302-20	2,849
21st Century Community Learning Grant: St. James-Santee Elementary School and Lincoln Middle-High School (Charleston County School District - A.I.M. Achieve, Inspire, Motivate)	84.287	14CL302-21	8,416
South Carolina Department of Education			
Learning Mathematics and Science with Technology (LMaST)	84.366	14MS302-01	63,319
Learning Mathematics and Science with Technology (LMaST)	84.366	15MS302-01	41,470
National Writing Project			
		01-SC11-SEED2012 // 2014-2016 SEED Teacher Leadership Development Grant	7,975
2014-2016 SEED Teacher Leadership Development Grant	84.367		
SEED Grant 2 Brook Glenn Elementary	84.367	01-SC11-SEED2012	248

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grantor's/Pass-Through Grantor's Number	Expenditures
OTHER PROGRAMS, Continued			
Department of Education, continued			
Pass-through programs, continued:			
National Writing Project, continued			
SEED Grant 2 LaFrance Elementary	84.367	01-SC11-SEED2012	248
SEED Grant 2 Welcome Elementary	84.367	01-SC11-SEED2012	124
South Carolina Commission on Higher Education			
Project RES: Reform-Based Environmental Science - FY 2013-14	84.367	ITQ 2013-14	39,658
The Ohio State University			
ARRA - Reading Recovery: Scaling Up What Works	84.396	60029187 PO# RF01359641	484,627
National Writing Project			
Investing in Innovation (i3): NWP College-Ready Writers Program - Florence 02	84.411	01-SC11-i32013	19,348
Investing in Innovation (i3): NWP College-Ready Writers Program - Florence 02	84.411	01-SC11-i32013	76,947
Investing in Innovation (i3): NWP College-Ready Writers Program - Greenwood 51	84.411	01-SC11-i32013	85,024
Investing in innovation (i3): NWP College-Ready Writers Program - Union	84.411	01-SC11-i32013	152,790
NWP i3 2015-2016 Professional Development Grant /Delayed Start District: Orangeburg 04 School District	84.411	01-SC11-i3DP2015	278
NWP i3 CRWP 2015-2016 Professional Development Grant/Delayed Start District: Anderson 03 School District	84.411	01-SC11-i3DP2015	556
NWP i3 CRWP 2015-2016 Professional Development Grant/Delayed Start District: Bamberg 02 School District	84.411	01-SC11-i3DP2015	278
The Ohio State University			
Improving Literacy Outcomes for Beginning Readers with Disabilities	84.411	60046517	200
Total Department of Education			<u>1,893,072</u>
Department of Health and Human Services			
Clemson Care: A Campus-Wide Comprehensive Suicide Prevention Strategy			
	92.243	5U79SM061785-02	52,733
Pass-through programs from:			
University of South Carolina			
Faith, Activity, and Nutrition: Dissemination in Underserved Communities (Applied Research Project)	93.135	15-2714 11570 FB18/PO#91219	9,522
Children's Trust of South Carolina			
Comprehensive Wellness Collaborative to Promote Academic Success in Young Parents	93.500	S-OAH-2014-3-1	121,987
Live Well Greenville-YMCA of Greenville			
Momentum Bike Clubs-Community Transportation Grant	93.737	Prime # 1H75DP004224-01	13,690
Total Department of Health and Human Services			<u>197,932</u>
Total Other Programs			<u>14,184,851</u>
Total Federal Expenditures			<u><u>\$ 173,858,985</u></u>

The accompanying notes are an integral part of this schedule.

Clemson University

Clemson, South Carolina

Notes to the Schedule of Expenditures of Federal Awards

June 30, 2015

Note 1. Basis of Presentation

The accompanying schedule of expenditures of federal awards (the schedule) includes the federal grant 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 Office of Management and Budget (OMB) Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Therefore, some amounts presented in the schedule may differ from amounts presented in, or used in the preparation of, the basic financial statements.

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 OMB Circular A-21, *Cost Principles for Educational Institutions*. Under these cost principles, certain 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, 2015, were based on predetermined fixed rates negotiated with the University's cognizant federal agency.

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. The balance of loans outstanding under the Federal Perkins Loan Program was \$8,323,293 as of June 30, 2015.

Note 4. Matching

Under the FWS program, the University matched \$213,016 in total compensation for the year ended June 30, 2015 in addition to the federal share of expenditures in the accompanying schedule of expenditures of federal awards.

Under the FSEOG program, the University matched \$1,180,934 in funds awarded to students for the year ended June 30, 2015, in addition to the federal share of expenditures in the accompanying schedule of expenditures of federal awards.

Clemson University**Clemson, South Carolina***Notes to the Schedule of Expenditures of Federal Awards**June 30, 2015*

Note 5. 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.

Note 6. Subrecipients

Of the federal expenditures presented in the schedule, the University provided federal awards to subrecipients as follows for the year ended June 30, 2015:

	<u>Federal CFDA Number</u>	<u>Amount Provided to Subrecipients</u>
Department of Agriculture		
	10.303	\$ 134,262
	10.309	402,012
	10.500	8,630
	10.561	<u>196,017</u>
Total Department of Agriculture		<u>740,921</u>
Department of Commerce		
	11.417	<u>28,766</u>
Total Department of Commerce		<u>28,766</u>
Department of Defense		
	12.UNK	94,121
	12.351	159,722
	12.420	58,131
	12.431	<u>95,219</u>
Total Department of Defense		<u>407,193</u>
Department of the Interior		
	15.805	<u>672</u>
Total Department of the Interior		<u>672</u>
Department of State		
	19.345	<u>36,242</u>
Total Department of State		<u>36,242</u>

Clemson University**Clemson, South Carolina***Notes to the Schedule of Expenditures of Federal Awards**June 30, 2015*

Note 6. Subrecipients, Continued

	Federal CFDA Number	Amount Provided to Subrecipients
Department of Transportation		
	20.UNK	132,976
	20.205	<u>92,515</u>
Total Department of Transportation		<u>225,491</u>
Department of National Aeronautics and Space Administration		
	43.001	<u>12,509</u>
Total Department of National Aeronautics and Space Administration		<u>12,509</u>
National Science Foundation		
	47.041	258,455
	47.049	143,740
	47.050	182,627
	47.070	1,384,200
	47.074	32,363
	47.076	<u>13,587</u>
Total National Science Foundation		<u>2,014,972</u>
Environmental Protection Agency		
	66.509	<u>59,282</u>
Total Environmental Protection Agency		<u>59,282</u>
Department of Energy		
	81.UNK	251,865
	81.049	166,244
	81.089	103,861
	81.113	80,000
	81.121	<u>122,332</u>
Total Department of Energy		<u>724,302</u>

Clemson University**Clemson, South Carolina***Notes to the Schedule of Expenditures of Federal Awards**June 30, 2015*

Note 6. Subrecipients, Continued

	Federal CFDA Number	Amount Provided to Subrecipients
Department of Education		
	84.287	8,416
Department of Education	84.411	<u>29,878</u>
Total Department of Education		<u>38,294</u>
 Department of Health and Human Services		
	93.UNK	144,896
	93.113	9,578
	93.121	194,402
	93.361	11,601
	93.500	38,514
	93.520	3,893
	93.837	118,035
	93-859	295,360
	93.865	108,981
	93.867	72,225
	93.989	<u>45,000</u>
Total Department of Health and Human Services		<u>1,042,485</u>
 Agency for International Development		
	98.001	<u>117,855</u>
Total Agency for International Development		<u>117,855</u>
Total Provided to Subrecipients		<u>\$ 5,448,984</u>



**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, 2015, and the related notes to the financial statements, which collectively comprise the University's basic financial statements, and have issued our report thereon dated October 1, 2015. Our report includes a reference to other auditors who audited the financial statements of 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 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 Davis Decosimo, LLC". The signature is written in a cursive, flowing style.

Greenville, South Carolina
October 1, 2015

**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 OMB Circular A-133**

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, 2015. 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) and Clemson University Land Stewardship Foundation (CULSF), discretely presented component units which received \$2,397,987 and \$858,382, respectively, in federal awards which are not included in the University's schedule for the year ended June 30, 2015. Our audit, described below, did not include the operations of CURF and CULSF because the discretely presented component units engaged other auditors to perform an audit in accordance with OMB Circular A-133.

Management's Responsibility

Management is responsible for compliance with the requirements of laws, regulations, contracts, and grants 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 OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Those standards and OMB Circular A-133 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, 2015.

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 OMB Circular A-133, 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, material weaknesses may exist that have not been identified.

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 OMB Circular A-133. Accordingly, this report is not suitable for any other purpose.

Report on Schedule of Expenditures of Federal Awards Required by OMB Circular A-133

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, 2015, and the related notes to the financial statements, which collectively comprise the University's basic financial statements. We issued our report thereon dated October 1, 2015, which contained unmodified opinions on those financial statements. 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 OMB Circular A-133 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.

Elliott Davis Decosimo, LLC

Greenville, South Carolina
October 1, 2015

Clemson University
Clemson, South Carolina
Schedule of Findings and Questioned Costs
For the year ended June 30, 2015

Section I. Summary of Auditor's Results

Financial Statements

Type of auditor's report issued: 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? _____ yes X 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 Section 510(a) of Circular A-133 _____ yes X no

Identification of major federal programs:

<u>CFDA Numbers</u>	<u>Name of federal program or cluster</u>
10.RD; 11.RD; 12.RD; 15.RD; 16.RD; 17.RD; 19.RD; 20.RD; 23.RD; 43.RD; 45.RD; 47.RD; 64.RD; 66.RD; 77.RD; 81.RD; 84.RD; 85.RD; 93.RD; 97.RD; 98.RD; 99.RD	Research and Development Cluster
10.500	Cooperative Extension Service – Smith Lever

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

Auditee qualified as low-risk auditee? X yes _____ no

Clemson University
Clemson, South Carolina
Schedule of Findings and Questioned Costs
For the year ended June 30, 2015

Section II. Financial Statement Findings

None reported

Section III. Federal Award Questioned Costs & Findings

None reported

Clemson University
Clemson, South Carolina
Summary Schedule of Prior Audit Findings
For the year ended June 30, 2015

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 2014-1

Program: CFDA No. 84.268 - Federal Direct Loans; CFDA No. 84.063 - Federal Pell Grant Program

Condition: The University did not include all necessary parameters in queries used to identify students who unofficially withdrew and would require Return of Title IV calculations to be performed.

Current Action

Taken/Current Status: Staff in the Office of Student Financial Aid (SFA) met with Records and Registration staff after the initial findings to ensure that all non-passing grades were identified. All student records from the initial findings were corrected, and funds were returned to the required federal programs. The new parameters have been used in subsequent semesters.

An additional review was performed in February 2015 by the Clemson University Office of Internal Auditing to ensure that appropriate corrective actions were taken. The internal review did not identify any concerns related to Title IV aid refund calculations. The internal audit found that "Student Financial Aid has implemented procedures to help ensure all appropriate refund calculations are performed."

Finding 2014-2

Program: CFDA 84.268 – Federal Direct Loans

Condition: The University did not consistently provide exit counseling materials for certain groups of students during the 2013-2014 academic year.

Current Action

Taken/Current Status: The Exit Counseling process and procedures have been reviewed to verify that all appropriate students receive Exit Counseling materials. All students affected by the exit counseling issue from 2013-14 were identified and notified of the situation. A separate email address was created and is used to send Exit Counseling information to the appropriate students. This website is monitored by SFA Loan Staff who respond to any questions or concerns about loan issues.