

**CLEMSON UNIVERSITY
CLEMSON, SOUTH CAROLINA**

OMB CIRCULAR A-133 REPORTS

FOR THE YEAR ENDED JUNE 30, 2012

**CLEMSON UNIVERSITY
CLEMSON, SOUTH CAROLINA
OMB CIRCULAR A-133 REPORTS**

CONTENTS

	<u>Page</u>
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS	1 - 35
NOTES TO THE SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS	36 - 39
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	40 - 41
INDEPENDENT AUDITOR'S REPORT ON COMPLIANCE WITH REQUIREMENTS THAT COULD HAVE A DIRECT AND MATERIAL EFFECT ON EACH MAJOR PROGRAM AND ON INTERNAL CONTROL OVER COMPLIANCE IN ACCORDANCE WITH OMB CIRCULAR A-133 AND ON THE SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS	42 - 43
SCHEDULE OF FINDINGS AND QUESTIONED COSTS	44 - 45
SUMMARY SCHEDULE OF PRIOR AUDIT FINDINGS	46

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total 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	\$ 14,307
2010 Borlaug Fellowship for Bulgaria	10.RD	58-3148-1-084	175
Acquisition of Goods and Services	10.RD	58-6657-0-900	16,190
Acquisition of Goods and Services	10.RD	58-6657-1-901	52,502
Acquisition of Goods and Services	10.RD	58-6659-1-111	8,494
Acquisition of Goods and Services	10.RD	58-6659-2-112	12,364
Acquisition of Goods and Services (Coastal Plain Soil, Water and Plant Conservation Research)	10.RD	58-6657-2-201	18,664
Amphibian Response to Fire: Anuran Movements and Habitat Selection	10.RD	11-CA-11330136-085	49,991
An Integrated Dual Site-Specific Recombination System For Use In Developing Environmentally Safe and Clean Transgenic Turfgrass	10.RD	2007-33522-18489	44,085
An International Collaboration to Understand Molecular Mechanisms of Vegetative/Reproductive Transition in Gymnosperms	10.RD	2009-51160-05478	70,824
Analysis of Beef Samples of the "Pasture Based Beef Systems for Appalachia"	10.RD	58-1932-8-838	244,010
Animal Health	10.RD	Unknown	22,753
Application of Biotechnology to Control the Soybean Cyst Nematode	10.RD	58-1275-2-353	14,135
Application of Biotechnology to Control the Soybean Cyst Nematode	10.RD	58-1275-7-340	65,186
Biologically-Based Integrated management of Bacterial Leaf Diseases on Leafy Brassica Greens	10.RD	2008-34381-19241	15,662
Bridging Specialty Crop Producers & Institutional Food Purchasers: Distilling a Research & Extension Agenda in Support of Local Food Systems	10.RD	2009-51181-05981	9,459
Children, Youth and Families at Risk (CYFAR) Liaison	10.RD	2009-41520-05376	35,537
Clemson University Sustainable Community Project	10.RD	2011-41520-30408	98,811
Clemson University Veterinary Institute, SC	10.RD	2010-38942-20745	301,403
Comparative Trapping Investigations of Small Hive Beetles Inside Honey Bee Colonies	10.RD	2010-34381-21291	47,969
Containment, Remediation, and Recycling of Irrigation Water for Sustainable Ornamental Crop Production	10.RD	2011-51181-30633	7,594
Data Collection to Support International Regulatory Approvals for "Honeysweet" Plums	10.RD	58-1931-9-950	110,348
Data Sources and Food Demand Estimation: A Comparison of Homescan and Consumer Expenditure Data	10.RD	2011-67023-30058	94,764
Detection and Mitigation of Phytophthora Ramorum and other Species of Phytophthora in Forest Streams	10.RD	09-JV-11272138-014	36,827
Developing Canola Varieties with Durable and Robust Blackleg Resistance by Pyramiding Race-Specific Resistant Genes	10.RD	2010-38624-21823	78,428
Developing Dynamic Mist Control Strategies for the Propagation of Vegetable Cuttings	10.RD	58-3607-8-722	24,393
Developing Fundamental Knowledge of Plant-Insect Interactions and Application of Sensor-Based Technology for Management of Stink Bugs in Cotton	10.RD	2011-67012-30752	56,227
Development and Implementation of a Web Application in Support of the "Profile" Resistance Management Program	10.RD	2010-34103-21000	23,163
Development of an Action Plan to Increase the Sustainable and Regionally Appropriate Use of Natural and Historic Resources in Union County, South Carolina	10.RD	AG-4670-C-09-0083	(50)
Development of Plant Materials Native to Longleaf Ecosystems Within the Atlantic Coastal Plain of North and South Carolina	10.RD	09-CS-11081209-002	4,252
Drought Effects on Forest Regeneration in the Southeast- Regional Analysis Based on FHM/FIA Data	10.RD	10-DG-11083150-013	37,035
Enhancing Expertise in Identification of Plant-Parasitic Nematodes of Regulatory Significance	10.RD	11-8130-0040-CA	25,957
Enhancing the Sustainability of Livestock Production Systems on the Southeastern US	10.RD	2010-51160-21072	8,649

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Agriculture, Continued			
Environmental Risk Assessment of Perennial Grasses Genetically Engineered for Abiotic Stress Tolerance	10.RD	2010-33522-21656	104,034
Farmscape Ecology of Stink Bugs and the Development of Environmentally Friendly Control Strategies	10.RD	2009-34103-19813	75,080
Fuel Dynamics in South Pine Beetle Killed Stands and Its Implication to Fire Behavior	10.RD	10-DG-11083150-005	10,334
Genetic Engineering for Septoria Disease Resistance in Hybrid Poplar	10.RD	2011-67010-30197	78,188
Genetics and Genomics of Chestnut Blight Resistance	10.RD	10-CA-11330137-094	185
Genetics and Genomics of Chestnut Blight Resistance	10.RD	11-CA-11330126-106	76,425
Genomic Resources for Discovery of Genes Controlling Biosynthesis of Charantin and Polypeptide-p, and Molecular Breeding in Bitter Melon	10.RD	2009-35301-05041	8,509
Hand Hygiene Promotion: An Essential Strategy for Preventing Foodborne Illness in Elementary Schools	10.RD	2011-51110-31020	12,266
Hatch	10.RD	Unknown	3,584,203
Implementation of a Regional Fungicide Resistance Monitoring and Brown Rot Disease Management Program to Sustain Peach Production in the South	10.RD	2008-34103-19098	238
Implementation of an Evaluation Framework for the MarketMaker National Network	10.RD	12-25-G-1126	52,716
Improving Food Handling, Hygiene, and Sanitation in the Child Care Environment in North Carolina and South Carolina	10.RD	2008-51110-04335	128,505
Innovative Nematode Management Strategies to Reduce Pesticide Usage While Enhancing Farm Profit and Environmental Quality	10.RD	2010-51101-21785	274,648
Integrating Management of Soft Scales in the Southern Landscape	10.RD	2010-34103-21144	41,394
Interaction and Function of Lepidopteran and Virus Gap Junction Proteins	10.RD	2007-35607-17885	11,873
Laboratory Analysis of Leaf Bait Samples from Streams in Georgia: 2011	10.RD	2011001085	6,000
Land Use Planning and Forest Disturbance: Comparison of Models, Dissemination of Information in the American Planning Association	10.RD	12-CA-11330136-036	3,560
Land Use Planning for Future Forest Disturbances: An Analysis of the Usefulness of Conservation Planning Tools and Technology	10.RD	10-DG-11330136-141	16,612
Long-Term Changes in Bird Community Composition with Forest Maturation in Southern Appalachian Hardwood Forests	10.RD	SRS 07-CA-11330134-089	2,884
Managing Declining Pine Stands for the Restoration of Red-cockaded Woodpecker Habitat (Resample Supplement)	10.RD	12-JV-11330123-046	4,509
Managing Declining Pine Stands for the Restoration of Red-Cockaded Woodpecker Habitat	10.RD	06-JV-11330138-125	(100)
M-cells in the Bovine Mammary Gland	10.RD	2011-67016-30140	21,696
McIntire Stennis	10.RD	Unknown	840,833
Mechanism of a Secondary Metabolite Mediated Iron Uptake in Plants	10.RD	2010-65114-20352	32,289
Mechanisms, Ecological Impacts, and Restoration Strategies for Invasion of Agricultural Fields by the Clonal Plant <i>Polygonum cuspidatum</i>	10.RD	2009-35320-05042	50,809
Mitigation of <i>Phytophthora ramorum</i> in Water With Algaecides	10.RD	10-8100-0999-CA	4,295
Mitigation of <i>Phytophthora</i> Species in Water With Algaecides	10.RD	11-8130-0999-CA	34,821
Monitoring Risk of Introducing <i>Phytophthora ramorum</i> Into Landscapes in the Southeastern US	10.RD	09-8100-0999-CA	8,155
Multi-Scale Biogeochemical Assessment of Soil Dentrification Process Impacted by Nanosilver	10.RD	2012-67022-30158	24,978
Myoepithelial Ontogeny in Prepubertal Heifers	10.RD	2009-35208-05778	103,287
Neural Plasticity and Behavior: A New Approach to Assessing Hen Welfare	10.RD	2007-35204-18533	(1)
Nutrition and Food Safety Education Targeting Rural Older Adults: Using a Volunteer-based, Train-the-Team Approach	10.RD	2010-46100-21801	124,257
Pest Control Alternatives, South Carolina	10.RD	2008-34287-19425	3,747

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Agriculture, Continued			
Phytophthora Root Rot on American Chestnut Seedlings Planted in the Southern Region	10.RD	12-CR-11330134-016	3,985
Pilot Study to Determine the Effect of a Nutritional Food Safety Curriculum Targeting Older Adults Who Participate in the South Carolina Congregate Nutrition Program	10.RD	2009-46100-05957	46,741
Plum Pox Virus National Survey South Carolina 2010	10.RD	10-8245-0715-CA	4,018
Potential Efficacy of a Copper Fungicide for Preventing Establishment and Dissemination of Phytophthora ramorum in Ornamental Plant Nurseries: FY2011-12	10.RD	11-8130-0055-CA	692
Preparing Forestry and Natural Resources Leaders in an Era of Change	10.RD	2009-38832-20182	11,991
Prescribed Fire vs. Wildfire: Impacts of Repeated Fires on Vegetative Community Development in the Southern Appalachian Mountains	10.RD	11-DG-11330136-004	15,548
Producing Biological Control Agents for Use in Hemlock Woolly Adelgid Management in the Southern Appalachians	10.RD	10-DG-11083150-031	22,801
Producing Biological Control Agents for Use in Hemlock Woolly Adelgid Management	10.RD	08-DG-11083150-012	25,319
Rapid Detection of Phytophthora Ramorum in Water	10.RD	10-8100-1538-CA	473
Rapid Detection of Phytophthora Ramorum in Water: Year 2	10.RD	11-8130-1538-CA	29,809
Repeated and Prescribed Fires and Mechanical Fuel Treatments May Promote Multiple Management Objectives in the Southern Appalachian Mountains	10.RD	12-CA-11330136-041	10,996
Research Support Agreement Management Report	10.RD	58-6659-1-110	7,023
Research Synthesis: Impacts of Fire on Fauna in the Appalachian Region	10.RD	12-CA-11330136-008	5,052
Socioeconomic Predictors of Family Forest Owner Use of Federal Income Tax Provisions	10.RD	10-JV-11330143-090	22,799
Southeastern Budwood Program	10.RD	09-8100-1414-CA	2,049
Southeastern Budwood Program	10.RD	10-8100-1414-CA	105,751
Southeastern Budwood Program	10.RD	11-8100-1414-CA	20,544
Statistical Research Analysis	10.RD	58-3AEU-1-0002	51,353
Technology for Irrigated Vegetable Production, SC	10.RD	2010-38508-20653	102,662
Temporal and Spatial Patterns of Pine Mortality in the Southeastern United States	10.RD	SRS 09-JV-11330123-095	172,590
The Supplemental Nutrition Assistance Program and Household Spending: A Flexible Demand System Approach	10.RD	58-5000-1-0028	28,588
Tracking and Managing Diseases of Floriculture Crops Caused by Oomycetes and Fungi	10.RD	58-1907-0-103	41,124
Translational Genomics Approaches to Control of Peach Tree Short Life in the Southeastern US	10.RD	2009-34126-20267	24,782
Translational Genomics Approaches to Control of Peach Tree Short Life in the Southeastern US	10.RD	2010-34126-21199	64,738
USDA Facilities Maintenance Services	10.RD	58-6655-1-107	9,671
Use of Wetland Systems to Treat Nursery Runoff	10.RD	58-6618-7-216	58,449
Using Local Food Banks to Improve Sustainability of Small and Limited Resource Farms	10.RD	2011-67023-30124	89,621
Pass-through programs from:			
Auburn University			
Demonstrating Use of High-Residue, Cover-Crop Conservation Tillage Systems to Control Glyphosate-Resistant Palmer Amaranth	10.RD	10-AGR-361124-CU	9,176
Cornell University			
Eastern Broccoli: Developing An Eastern Broccoli Industry	10.RD	61314-9362	17,122
Florida State University			
Decision Support System for Reducing Agricultural Risks Caused by Climate Variability	10.RD	R01225	2,127

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Agriculture, continued			
Pass-through programs, continued:			
Michigan State University			
RosBREED: Enabling Marker Assisted Breeding in Rosaceae	10.RD	61-4296E	47,000
North Carolina State University			
Building Capacity to Control Viral Foodborne Disease: A Translational, Multidisciplinary Approach	10.RD	2011-0494-01	130,750
Developing Tools for Integrated Pest Management of an Exotic White Grub in Sweet Potato	10.RD	2009-0987-02	408
Development of Grafting Technology to Improve Sustainability and Competitiveness of the U.S. Fruiting Vegetable Industry	10.RD	2011-1609-01	99,831
Pennsylvania State University			
Innovative Technologies of Thinning of Fruit	10.RD	3818-CU-USDA-9561	31,092
South Carolina Department of Agriculture			
Advancing the Transition from Conventional to Organic Vegetable Production Utilizing Precision Fertigation Technologies and Cover Cropping	10.RD	Project 5	431
Alternatives to Pristine Fungicide to Control Gummy Stem Blight on Watermelon	10.RD	Project 12	17,629
Development of Peach Varieties with Superior Qualities for Enhanced Production, Increased Consumption and Competitive Advantage of the South Carolina Peach in the Global Market	10.RD	12-25-B-1253	4,614
Feasibility Study for Specialty Food Crop Incubator	10.RD	12-25-B-1093	2,083
Fresh Produce Safety Training in Good Agricultural Practices	10.RD	Project 14	886
How To Make the Best Use of Public Funds in Promoting Locally Grown Products: Assessment of the Potential Impact of a Promotion Campaign	10.RD	None	7,781
Local Production and Niche Market Development with Native and Exotic Fruits	10.RD	Project 10	3,385
Modification of Darwin Mechanical Thinner to Enhance Grower Profitability and Labor Efficiency in Peach Production	10.RD	Project 3	7,806
On-Farm Evaluation of Brassicas with Resistance to Bacterial Leaf Spot	10.RD	Project 4	9
Orchard Water Management in South Carolina Peach Production	10.RD	12-25-B-1093	3,703
Preserving Locally Grown Specialty Crops and Produce	10.RD	12-25-B-1093	17,368
Sensitivity of the Gummy Stem Blight Fungus to Folicur and Other Group 3 Fungicides	10.RD	12-25-B-1093	6,770
South Carolina Forestry Commission			
Hemlock Woolly Adelgid Services	10.RD	None	687
State of California			
Economic Impacts of Urban Forestry in California	10.RD	9IT84009	(633)
Texas Tech University			
Impacts of Alternative Water Policies on the Rural Economies and Aquifer Hydrology	10.RD	21A151-01 (1300/C867-01)	22,120
University of Arkansas			
The Evolutionary Dynamics and Management of Weedy Rice in the U.S.	10.RD	UA AES 900957-01	2,664
University of California Davis			
Developing and Validating Practical Strategies to Improve Microbial Safety in Composting Process Control and Handling Practices	10.RD	201016985-01	78,086
Validating Salmonella Inactivation During Thermal Processing of the Physically Heat-treated Chicken Litter As Soil Amendment and Organic Fertilizer	10.RD	201121654-01	642
University of Florida			
2011 IR-4 Ornamental Trials	10.RD	PO 1200139959	9,997
Climate Variability to Climate Change: Extension Challenges and Opportunities in the Southeast Area	10.RD	UF11109 00094451	57,476
Integrated Grafting Technology to Improve Disease Resistance and Fruit Yield in Specialty Melon Production	10.RD	UF10235	24,973

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Agriculture, continued			
Pass-through programs from University of Florida, continued:			
Precision Disease Management for Sustainable Strawberry Production in the Eastern United States	10.RD	00089088 UF10221	143,698
University of Georgia			
A Reduced Risk Management System for Managing Thrips and Tomato Spotted Wilt Virus in Tomato and Pepper in the Southeastern USA	10.RD	RF330-411/3843878	16,256
A Systems Approach to Minimize Escherichia Coli O157:H7 Food Safety Hazards Associated with Fresh and Fresh-cut Leafy Greens	10.RD	RD319-243/3504758	129,511
Carbon Dynamics in Management Intensive Grazing Dairy Systems	10.RD	RC284-551/4895306	62,914
Defining Parameters to Eliminate Pathogens in Composted Animal Manures for Application to Produce Fields	10.RD	RD319-249/3841268	12,227
Ecologically Driven Stink Bug Management in Commercial Farmscape	10.RD	RF330-451/4893146	17,686
Evaluation of Somatic Seedlings of American Chestnut for Resistance to Phytophthora Root Rot-Forest Health Initiative	10.RD	RR272-333/4784886	9,542
Implement Plan of Work for the Southern Region Sustainable Agriculture Research & Education (SARE) Program	10.RD	RD309-109/4786416	5,496
Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education Professional Development Program (PDP)	10.RD	RE675-161/4786346	65,793
Improvement of the Safety of Food Handling Practices on Small Farms	10.RD	RD309-105/4690158	78,863
Southeastern Beef Cattle Risk Management Education Project	10.RD	RE684-167/4786716	1,125
Training Educators and Agricultural Professionals on Sustainable, Pasture-Based Dairy Systems	10.RD	RE671-619/4690568	13,668
University of Kentucky			
CYFAR Capacity Building Program - Federal Collaborative Partner Opportunities	10.RD	3048106543-10-120	20,623
University of South Carolina			
Genomic and Breeding Foundations for Cellulosic Sorghum Bioenergy Hybrids	10.RD	PO#41650(13010-FB90)/12-2015	21,298
Utah State University			
Enhancing and Expanding the Retail Food Safety Consortium	10.RD	07046004	22,684
Virginia Polytechnic Institute			
Oomyceticide Resistance and Phytophthora Disease Management for the Ornamental Horticulture Industry	10.RD	422141-19244	105
Washington State University			
Tree Fruit GDR: Translating Genomic Knowledge to Fruit Tree Agriculture	10.RD	111359 G002633	118,852
Total Department of Agriculture			9,716,830
Department of Commerce			
Blue Crab Recruitment and Survival in the Ace Basin	11.RD	FNA11NOS4200085	20,000
Botanical Product Analysis by HPLC-Particle Beam Mass Spectrometers	11.RD	60NANB12D110	10,323
Fatigue, Shiftwork and Human Performance	11.RD	60NANB11D035N-02	24,885
Guidance for South Carolina on Near-Term Coastal Adaptation Priorities	11.RD	FNA09OAR4310153	5,927
Ion Modified Barrier Enhanced Detection of Highly Charged Ion Impact Sites	11.RD	70NANB11H109	40,641
Understanding the Dynamics of Invasion: A Test Using the Titan Acorn Barnacle (Megabalanus Coccoporne) and the Striped Barnacle Amphibalanus Amphitrite			
Amphibalanus Amphitrite	11.RD	FNA09NOS4200045	6,990
Pass-through programs from:			
Clemson University Research Foundation			
Evaluation of IC Interconnect Failure of through Silicon Vias (TVSs)	11.RD	60NANB12H016	6,877
National Textile Center			
Feasible Fiber-Nanoparticle Systems for Commercial Applications	11.RD	08-07400	1,828
Light Emitting Nanocomposite Fibers (LENFs)	11.RD	08-07400	(1)

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Commerce, continued			
Pass-through programs, continued:			
South Carolina Manufacturing Extension Partnership			
SCMEP FY11	11.RD	2011-003	(1)
SCMEP FY12	11.RD	2012-002	90,001
South Carolina Sea Grant Consortium			
Drought and Decline of Blue Crabs in South Carolina	11.RD	M284-R/CF-15	40,354
Examining Capacity for a Cooperative Seafood Tourism Trail as a Value-Added Marine Resource-Based Recreation and Tourism Product on the South Carolina Coast	11.RD	M394	2,030
Green Infrastructure Design for Stormwater Management in Coastal South Carolina: An Assessment of Ecohydrological Function	11.RD	M388	18,365
Infiltration Versus Retention for Stormwater Quantity and Quality Management: A Continued Assessment of Rainfall Response in Coastal South Carolina Watersheds	11.RD	M277-R/ER-37	64,409
Predicting Building Envelope Failures of Residential Structures Due to Atlantic Basin Hurricane Wind Hazard	11.RD	M282-R/CH-2	40,673
Sea Grant Aquaculture Extension 2010: The SC Sea Grant Aquaculture Extension Enhancement Program	11.RD	A/E-AQ1a	12,653
Sea Grant Aquaculture Extension 2010: The SC Sea Grant Aquaculture Extension Enhancement Program - Year 2	11.RD	A/E-AQ1a - Yr. 2	9,610
Social Impact Analysis of Offshore Windpower Development on Tourism and Recreation in South Carolina	11.RD	R/31-C	6,003
Storm Hydrograph Separation Analysis for Paired Coastal Watersheds: An Assessment of Pre-development Site Conditions	11.RD	M177	10,483
Understanding Demand for Value-Added Products and Services Associated with For-Hire Boat Trips on the South Carolina Coast	11.RD	M390	2,847
Total Department of Commerce			<u>414,897</u>
Department of Defense			
2011 Clemson Mini-Conference on Discrete Mathematics and Algorithms	12.RD	H98230-11-1-0163	5,133
3-D Test Systems: New Tools for Unlocking the Mysteries of Breast Cancer	12.RD	W81XWH-05-1-0379	465,770
A High-Frequency Characterization System for the Study of Pulsed Power On-Chip Technologies and Microfabricated High Frequency Vacuum Devices	12.RD	FA9550-10-1-0507	4,480
A Novel Coating of Human Albumin Plastic to Inhibit Bacteria Colonization and Biofilm Formation on Orthopaedic Implants	12.RD	W81XWH-09-1-0547	44,733
A Real-Time 3D GPR Monitoring System to Support Basic Research for Subsurface Detection and Characterization in Complex Environments	12.RD	W911NF-10-1-0365	159
Accounting for Hydrologic State in Ground Penetrating Radar Classification Systems	12.RD	W911NF-10-1-0292	72,466
Acquisition of Fabrication Equipment for High Power Laser Research	12.RD	W911NF-11-1-0312	149,983
Adaptive Multicarrier Transmission for Dynamic Spectrum Access in Tactical Cognitive Radio Networks with Fading Channels	12.RD	N00014-12-1-0060	75,196
Adaptive Reliable Unicast and Multicast Transmission in Tactical Packet Radio Networks	12.RD	W911NF-11-1-0427	45,645
Atomistic Molecular Simulation Methods to Predict CBW A-Surface Interactions	12.RD	HDTRA1-10-1-0028	535,882
Carbon Fibers Derived from Sustainable Precursors	12.RD	W911NF-10-2-0024	147,270
Characterization of Microbes Capable of Using Vinyl Chloride as a Sole Carbon and Energy Source by Anaerobic Oxidation	12.RD	W912HQ-07-C-0008	20,175
Cognitive Radio for Tactical Wireless Communication Networks	12.RD	W911NF-08-1-0442	17,053
Combined Biological and Chemical Mechanisms for Degradation of Insensitive Munitions in the Presence of Alternate Explosives	12.RD	W912HQ-12-C-0058	17,318
Cooperative Red-Cockaded Woodpecker Translocation Support	12.RD	W9126G-10-2-0030	114,402
Designing Better Virtual Environments for Training	12.RD	N00014-09-1-0989	212,340
Detecting Hidden Communication Protocol	12.RD	FA9550-09-1-0173	95,072

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Defense, continued			
Develop Integrated Management Practices for the Control of Chinese Tallow (Triadica sebifera) in Coastal Forests	12.RD	W9126G-11-2-0057	15,652
Development of a Fort Jackson Watershed Management Plan Using GIS-Based Decision Support Tools	12.RD	W9126G-10-2-0013	58,787
Development of Marine Antifouling Coatings Utilizing a Fouling Deterrence Strategy	12.RD	N00014-11-1-0183	159,871
Engineering Chronic Spinal Cord Injury Lesion Cavity for Enhanced Regeneration	12.RD	W81XWH-10-1-0954	205,149
Facilitating Soldier Receipt of Needed Mental Health Treatment	12.RD	W81XWH-11-2-0010	294,162
Feasibility Studies in Development of a Temporary Implantable Lactate Sensor Biochip for Monitoring During Hemorrhage - Transfer from VCU	12.RD	DAMD17-03-1-0172	93,779
Friction Stir Welding Behavior of Selected 2000-series and 5000-series Aluminum Alloys	12.RD	W911NF-11-1-0207	4,210
Functional Nano and Micro Structured Composite Coatings	12.RD	FA8650-09-D-5900/0001	6
Garment Modification and Production Support - Task Orders	12.RD	2008*1221204*016	303,713
Gradient Films from Shape Memory Nanofoams for Waveguide Coating	12.RD	HDTRA1-10-1-0101	542,236
High Power Fiber Lasers	12.RD	W911NF-05-1-0517	117,701
High-Temperature Interfacial Thermodynamics for Mechanism-Informed Materials Design: A Case Study of Sintered Mo-Si-B Based Alloys	12.RD	FA9550-10-1-0185	156,977
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	33,555
Investigation of Large Scale Cortical Models on Clustered Multi-Core Processors	12.RD	FA9550-09-1-0137	82,281
Investigation of Subgrid-Scale Mixing and Turbulence-Chemistry Interaction in Turbulent-Partially Premixed Flame	12.RD	FA9550-09-1-0045	64,840
IPA Agreement from ARL - Watson	12.RD	21920400006N6N7C622105H7B002512 BWM300 IPA9WATSO18169 98MW3D S18129	22,486
Jet Disposal of Dredge Spoil: Transport, Entrainment and Deposition of Fluid Mud	12.RD	W912HZ-09-C-0068	70,427
Laboratory of Excellence for Characterization of Electromagnetic Properties of Nanocomposite Materials	12.RD	FA9550-11-1-0316	273,142
Manufacturing Science of Improved Molded Optics	12.RD	W911NF-09-1-0536	190,082
Multidimensional 2-Photon Imaging System for the Investigation of Biofouling Mechanisms and Biomineralization Mechanisms	12.RD	N00014-11-1-0784	171,977
Multi-length Scale Material Model Development for Armor-grade Composites	12.RD	W911NF-09-1-0513	128,118
New Protein Modification under Nitrosative Stress	12.RD	W81XWH-10-1-0385	86,605
Novel High Strength Barrier Seams for Shelters	12.RD	W911NF-05-1-0039	110,109
On-Chip Coherent Combing of Angled-Grating-Confined Broad-Area Semiconductor Lasers Through a Folded Supercavity for High Power, High Brightness Applications	12.RD	N66001-10-1-4038	181,376
Palmetto Number Theory Series/SouthEast Regional Meeting on Numbers	12.RD	H98230-11-1-0230	12,283
Polarization-Maintaining Large-Core All-Solid Photonic Bandgap Fibers for Power Scaling of High Power Fiber Lasers	12.RD	HQ0147-11-C-6010	350,684
Prevention of Heterotopic Ossification Following Amputation	12.RD	W81XWH-09-1-0549	64,149
Production and Characterization of Cut Resistant, Dyeable Fibers via Acrylic/Copolyaramid Bi-Component Wet Spinning	12.RD	W911QY-10-C-0107	147,604
Quantitative Separation of Single-Walled Carbon Nanotubes into Metallic and Semiconducting Fractions	12.RD	FA9550-09-1-0414	80,147
Receiver Statistics for Cognitive Radios in Dynamic Spectrum Access Networks	12.RD	N00014-09-1-0073	84,333
Research and Development on EM Responsive Coatings	12.RD	FA8650-09-D-5900/0002	134,178
Self-Cooling Gradient Shell: Proof of Principle	12.RD	FA8650-09-D-5900/0003	121,254
Subsurface Thermal Energy Storage (STES) for Improved Heating and Air-Conditioning Efficiency	12.RD	W912HQ-10-C-0027	244,545
Technologies and Methodologies in Prevention of ASR in Concrete Pavements	12.RD	N62583-09-C-0024	28,341
TENTNET Implementation: Surge Manufacturing Optimization STP	12.RD	SP0103-05-D0008/0005	20,526
The Arithmetic of Siegel Modular Forms	12.RD	H98230-11-1-0137	7,211
The Effects of Limited Contracting Capacity on Contracting Outcomes	12.RD	N00244-11-1-0025	80,387
The Laboratory for Advanced Photonic Composites	12.RD	N66001-04-1-8933	367,953
Topologically Protected Quantum Information Processing in Spin-orbit Coupled Semiconductors	12.RD	FA9550-10-1-0497	113,886

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Defense, continued			
Ultra-Trace Level Quantification of Alpha- and Beta- Emitting Radionuclides with Extractive Scintillating Resin	12.RD	HDTRA1-12-1-0012	4,273
Pass-through programs from:			
Battelle			
Material Model Development for Simulating the High Rate Response and Failure of Several Different Materials	12.RD	TCN 09062/PO US001-0000259670	92,372
Clemson University Research Foundation			
Eye-Safe Polycrystalline Lasers	12.RD	FA9550-07-1-0566	183,714
Innovative Design and Manufacturing of Gradient-Index-based Transformation Optics	12.RD	4622-CU-AFRL-7225	28,558
Luminescence Materials as Nanoparticle Thermal Sensors	12.RD	AA-5-33690	48,438
Novel FEL Cavity Optic Phase II	12.RD	N00014-12-1-0099	50,844
Novel High Energy Fiber Lasers	12.RD	HQ0147-08-C-0028	133,710
Novel Pre-Stabilization Route for Advanced Carbon Fibers	12.RD	605007709	11,205
Vertical SWEEPER Micro-Optics Design	12.RD	206-000057 (HR0011-10-C-0151)	15,074
3D Meta-Optics for High Energy Lasers	12.RD	20100669-04-CRF	63,358
Advanced Optical Fibers for High Power Fiber Lasers	12.RD	W911NF-10-1-0423	419,223
Engineered Laser Filaments in Air for Defense Stand-Off Sensing and Interaction Applications	12.RD	238975	21,743
Investigation of the Accumulative Roll Bonding ARB of Thick Titanium Sheets	12.RD	W911NF-10-1-0413	25,707
Light Filamentation Science	12.RD	232897	10,017
Multi-KW 2 M Emission by Spectrally combining Many Tm Fiber Lasers Year 2	12.RD	233280	51,084
NanoEnergetics-Fundamental Exploration and Technological Development	12.RD	RSC10010	91,944
Novel Materials and Components for All-fiber Faraday Isolators	12.RD	FA8650-09-C-5405	95,317
Workshop on challenges in Power Sealing of Semiconductor Diode Laser Emitters and Arrays: Heat Management, Reliability, and Beam Control	12.RD	W911NF-11-1-0463	15,873
FlexTech Alliance, Incorporated			
Material Registry for Inks and Printing Processes	12.RD	RFP09-146	42,856
Georgia Aquarium, Incorporated			
Pathophysiology of Stress in Wild and Managed-Care Bottlenose Dolphins	12.RD	None	5,000
Georgia Health Sciences University			
Myostatin Inhibitors to Accelerate Tissue Regeneration	12.RD	21970A-2	5,218
High Performance Technologies, Incorporated			
Methods for Reactive and Ab Initio Molecular Dynamics - KY2	12.RD	Task Order 002/PP-CCM-KY02-589	7,608
Lehigh University			
Tailoring of Atomic-Scale Interphase Complexions for Mechanism-Informed Material Design	12.RD	542549-78002	246,145
Massachusetts Institute of Technology			
Model-Based Real-Time Predistortion Linearization of Power Amplifiers	12.RD	7000118729	14,709
MIT Lincoln Laboratory			
Lincoln Laboratory Graduate Student Research Support	12.RD	PO 7000014944/3077723	5,460
Mote Marine Laboratory			
Novel Compounds from Shark and Stingray Epidermal Mucus with Antimicrobial Activity Against Wound Infection Pathogens	12.RD	MML-107-547	7,811
North Carolina A&T State University			
DNI S&T Center of Academic Excellence: Center for Academic Studies in Identity Sciences	12.RD	210096B	104,122
NXT, Incorporated			
Clemson University Subcontract to NXT for the National Institute of Building Sciences	12.RD	2012000752	1,743
ARRA - Creating World Class Healthcare Facilities for the Military Health System	12.RD	32224-Task Order 002	161,862

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Defense, continued			
Pass-through programs, continued:			
Pennsylvania State University			
Elastomeric Polymer-By-Design to Protect the Warfighter Against Traumatic Brain Injury by Diverting the Blast Induced Shock Waves from the Head	12.RD	4036-CU-ONR-1125	83,039
Science Applications International Corporation	12.RD	Old #P010037742; New #PO10054732	5,024
South Carolina Department of Natural Resources			
Clear Zone Habitat Conservation and Bird Aircraft Strike Hazard (B.A.S.H.) Considerations at South Carolina Airfields	12.RD	P24014405207	13,912
South Carolina Research Authority			
Troop Readiness Improvement Project (TRIM)	12.RD	2008-30	5,698
Development and Use of Genetic Methods for Assessing Aquatic Environmental Condition and Recruitment Dynamics of Native Stream Fishes on Pacific Islands	12.RD	TUL-607-10/11	16,414
Universal Technology Corporation			
Novel Pitch Materials for High Thermal Conductivity	12.RD	09-S568-081-01-C1	(47)
ARC Phase III: An Army Automotive Research Center of Excellence for Modeling and Simulation of Ground Vehicles - Fault Tolerant Hydraulic Hybrid System	12.RD	F011680	73,418
ARC Research at Clemson University	12.RD	F011680	152,587
Enhanced Fluid Properties and Minimization of Radiator Fan Power Consumption in Military Ground Vehicle Cooling Systems	12.RD	F011680	57,734
Modeling & Optimization of Electrified Propulsion Systems	12.RD	F011680	15,247
Ultracapacitor Energy Storage for Improving Fuel Economy and Extending Battery Life in Heavy Vehicles	12.RD	F011680	70,020
General, Unified Multiscale Modeling to Predict the Sensitivity of Energetic Materials	12.RD	C00006389-2	8,323
Advanced Digital Power Laboratory	12.RD	00018643-1	13,856
The Intelligent All Electric Ship Power System	12.RD	00015569-1	8,037
Synthesis and Raman Characterization of Boron Doped Carbon Nanotubes	12.RD	632274,Dr. Zakhidov,090727,P1196	72,422
Washington & Jefferson College			
Combat Stress Intervention Program-Clemson Team	12.RD	CSIP-02	66,090
Research Analysis Agreement between CSIP at Washington & Jefferson College and SOP at Clemson University	12.RD	CSIP	20,171
Total Department of Defense			9,894,732
Department of Interior			
Application of the Visitor Experience and Resource Protection (VERP) Program in Pinnacles National Monument	15.RD	J8450110020	31,212
Assessment of the Sublethal Response of Birds to Oil Exposure	15.RD	G10AC00494	16,468
Cannon Stabilization and Architectural Coatings Treatment at Fort Moultrie - CESU	15.RD	H5000085050 / J5430080027	173,951
Characterization of the Moth (Lepidoptera) Diversity of Congaree National Park (CESU)	15.RD	H5000085050 / J5430090058	2,484
Climate Change and Tidally Influenced Freshwater Forested Wetlands of the Southeast: Understanding Functional Ecological Attributes of Forest Transitions to Marsh	15.RD	G09AC00153	48,755
Determining the Movement Patterns and Habitat Use of Seabirds to Support Marine Spatial Planning Along the Atlantic Coast	15.RD	F11AC01380 (formerly F11AC00695)	13,342
Enhance of Suppressed Bald Cypress Growth on the Roanoke River NWR, NC	15.RD	1434-05HQRU1569-78 / 05569HR078	5,948
Evaluate Dormant Season Herbicide Treatment Methods for Chinese Privet at Congaree National Park	15.RD	H5000085050 / J5240100017	32,213
Evaluate Fort Sumter Bricks and Mortars Using Materials Science Repointing and the Historic Structure Report	15.RD	H5000085050 / J5430090029	41,228

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Interior, continued			
Evaluating the Effects of FERC License Actions for Consumers Energy Projects on Bald Eagles Nesting Along the Au Sable, Manistee and Muskegon Rivers	15.RD	G10AC00604 (05HQRU1569)	23,201
Front-End Development for the Biodiversity Database of Great Smoky Mountains National Park	15.RD	H5000085050 / P11AT51069	617
Habitat Restoration for Bobwhite Quail and Early-Successional Wildlife Species-Kings Mountain National Military Park	15.RD	P11AT50946 v2	16,628
Internship Program for Fire and Fuels Management	15.RD	H5000085050 / J5500080012	35,198
Internship Program for Fire and Fuels Management	15.RD	J5023040066	(10,364)
Program Management for the SC Water Resources Center	15.RD	G11AP20105	73,561
Real Time Monitoring to Support Environmental Impact Management Strategies for Road Construction Activities on Foothills Parkway: Wears Valley, Bridge Number 2	15.RD	H5000085041 / J5471100020	25,386
Scion and Seed Collection and Processing at Carl Sandburg Home National Historic Site	15.RD	H5000085050 / P11AT50774	20,225
Southern Appalachian Cooperative Ecosystems Studies	15.RD	H5000085050 / J5460080183	15,964
Structural Integrity Assessments at Fort Sumter National Monument (FSNM)- CESU	15.RD	P11AT50423 (H5000085050)	167,367
Structural Prognosis for the Effective Management of Nation's Cultural Heritage	15.RD	MT-2210-11-NC-02	5,767
Student Intern Support for Great Smoky Mountains National Park	15.RD	H5000030900/J5460080075	(215)
Tools Module Design	15.RD	PO # G10PX02492 / 1025400106	9,100
Towards Simpler, Cheaper and Greener Iron Conservation	15.RD	MT-2210-12-NC-01	1,819
Understanding Relationships Between Sediment and Carbon Deposition and Floodplain Forest Functions in the Congaree National Park, SC	15.RD	08HQAG0135 / G10AC00157	29,899
Visitor Management and Carrying Capacity at Cumberland Island National Seashore	15.RD	H5000085050 / J5630081021	17,774
Pass-through programs from:			
Florida Fish & Wildlife Conservation Commission Habitat Restoration Leveraged through Red-cockaded Woodpecker Translocations: A Multi-State Partnership	15.RD	A3971E/PR5395541-V2	68,440
National Fish and Wildlife Foundation Enhancing Productivity of Oystercatchers in Cape Romain	15.RD	2010-0002-000/18447	29,705
North Carolina Wildlife Resources Commission Effects of Intensive Pine Management on Aquatic Herptiles with Special Emphasis on Spotted Turtles, North Carolina, USA	15.RD	WM-0230/PO# EP4836408	7,987
South Carolina Department of Natural Resources Assessing Nest Success and Habitat Use of Wilson's Plovers #1	15.RD	SCDNR FY2012-004/P24019481612	557
Best Management Practices for Reducing Sea Turtle Predation	15.RD	None	5,242
Mink Restoration and Monitoring Development Project	15.RD	00780-90838	15,907
Monitoring Impacts of Native Yellow Pine Restoration on Avifauna in the South Carolina Mountains	15.RD	T-54-R-1, P24014406011	16,237
University of Minnesota Identifying and Evaluating Best Practices for the Adaptive Management of Water Resources	15.RD	H0020773301	40,176
Virginia Polytechnic Institute Assessing Quality Indicators for Interpretive Programs in the National Park Service	15.RD	457204-19244	45,576
National Education Council Interpretation and Education Program Assessment Tool	15.RD	432766-19244	17,989
Wildlands Network Assisting Wildlands Network to Identify and Prioritize Key Habitat Connectivity Areas for the South Atlantic Region	15.RD	F11AC00459	7,327
Total Department of the Interior			1,052,671
Department of Justice			
Pass-through programs from:			
West Virginia Research Corporation Use of Periocular Features for Biometric Recognition	16.RD	09-0970-CU	146,026
Total Department of Justice			146,026

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
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	69,247
Total Department of Labor			<u>69,247</u>
Department of State			
Capacity Building for Study Abroad: Cooperative Bachelor's Degree Programs	19.RD	S-ECAAS-09-GR-158 (EB)	17,641
Internet Democracy Support for West Africa	19.RD	S-LMAQM-12-GR-1033	85
Total Department of State			<u>17,726</u>
Department of Transportation			
2010 Eisenhower Graduate Fellowship- Lee Tupper	20.RD	DTFH64-10-G-00016	4,376
2011 Dwight D. Eisenhower Fellowship Award (Ashley Stafford)	20.RD	DTFH64-11-G-00036	5,000
2011 Eisenhower Graduate Fellowship - Lee Tupper	20.RD	DTFH64-11-G-00047	3,428
2011 Eisenhower Graduate Fellowship - Yiming He	20.RD	DTFH64-11-G-00023	5,000
Reducing Energy Usage Through Transportation Planning for Megaregions	20.RD	DTFH61-08-C-00022	23
Pass-through programs from:			
Clemson University Research Foundation			
Vehicle Stability and Dynamics: Electronic Stability Control	20.RD	NTRCI-11-02 TO#001	49,244
Vehicle Stability and Dynamics: Longer Combination Vehicles	20.RD	NTRCI-11-02 TO#002	15,137
Innovative Pavement Research Foundation			
Performance of Concrete in the Presence of Airfield Pavement Deicers and Identification of Induced Distress Mechanisms	20.RD	FAA-01-G-002-05-7	152,930
Intelligent Automation Incorporated			
A Novel Detection and Warning System to Mitigate Dilemma Zone (DZ) Issues	20.RD	826-2	31,261
Professional Service Industries, Incorporated			
Fundamental Investigations into ASR - Mechanisms, Mitigation and Testing	20.RD	None	95,662
South Carolina Department of Public Safety			
Ticketing Aggressive Cars and Trucks Program in South Carolina	20.RD	None	9,687
South Carolina Department of Transportation			
Accelerated Bridge Construction - Precast Alternate for Flat Slab Spans	20.RD	1297/1449, Proj No. 682	124,617
Evaluation of Open-Graded Friction Courses: Construction, Maintenance, and Performance	20.RD	1323, Proj No. 687	33,864
Guidelines for Longitudinal Pavement Marking Applications	20.RD	1381; Project No. 669	36,641
Impact of Coarse Aggregate Gradation on PCC Performance Properties	20.RD	1361; Proj No. 689	99,216
Improvements to Acceleration Design Response Spectra for Seismic Design of Transportation Structures in South Carolina	20.RD	1318, Proj No. 686	101,932
Integration of the Incident Command System (ICS) Protocol for Effective Coordination of Multi-Agency Response to Traffic Incidents	20.RD	1543; Proj No. 699	10,866
Investigation of Warm Mix Asphalt (WMA) Technologies and Increased Percentage of Recycled Asphalt Pavement (RAP) in Asphalt Mixtures	20.RD	1275; Proj No. 680	123,240
Operational and Safety Characteristics of Lane Widths	20.RD	1440; Proj No. 693	87,770
Professional Services Contract Manager Development and Certification Strategy	20.RD	1507; Project No. 696	81,395
Ranking of Pavement Preservation Methods and Practices	20.RD	1456; Proj No 695	87,716
Real Time Measurement of Scour Depths Around Bridge Piers and Abutments	20.RD	1417; Proj No. 692	121,283
Study of the Rate of Deterioration of Bridges and Pavements as Affected by Trucks	20.RD	1463; Project No. 694	149,673
The Relationship of SCDOT Damage Claims and Lawsuits to Roadway Engineering Safety Issues	20.RD	1300, Project No, 685	5,572
Validation of Contractor HMA Testing Data in the Materials Acceptance Process - Phase II	20.RD	1508; Project No. 697	90,626

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Transportation, continued			
Pass-through programs, continued:			
TransAnalytics, LLC			
The Effects of Medical Conditions on Driving Performance	20.RD	DTNH22-09-D-00135, Task Order No. 04	2,758
University of North Carolina - Chapel Hill			
Pedal Application Errors	20.RD	5-36366	116,569
Validation of Training Programs for Older Drivers	20.RD	5-36487	19,992
University of Tennessee			
Production of Biohydrogen and Succinic Acid	20.RD	8500022313	29,485
Total Department of Transportation			1,694,963
National Aeronautics and Space Administration			
A Multi-Instrument Study of Electron-Positron Annihilation in the Milky Way	43.RD	NNX09AC80G	79,521
Chemical Evolution of the Neutron-Rich Iron-Group Isotopes and Implications for the Formation of FUN CAIs	43.RD	NNX10AN96H	32,347
Development of a New Chemical Release Technique for Measuring Neutral Wind Velocity Gradients in the Earth's Auroral Thermosphere	43.RD	NNX08AW11G	111
Equatorial Vortex Experiment (EVEX): A Study of the Ionospheric Plasma Circulation and the Sunset Layer from Kwajalein (Clemson CO-I Proposal)	43.RD	NNX10AL26G	137,182
FERMI GBM Studies of Diffuse and Transient Emission	43.RD	NNX09AT90G	2,534
Geospace Response to Lower Atmospheric Wave Variability Due to the El Nino - Southern Oscillation	43.RD	NNX11AJ13G	59,491
High-resolution NIR Spectroscopy of Transitional Disks Around Herbig Ae/Be Stars: Catching Planet Formation in the Act	43.RD	NNX08AH90G	13,129
Investigation of Anomalous Transport in the Lower Thermosphere	43.RD	NNX11AE17G	208,687
Neutral-Ion Coupling and Wind Shear Effects in the Daytime Lower Ionosphere	43.RD	NNX09AI20G	106,246
Nucleosynthesis and Galactic Chemical Evolution of Cosmochemically Significant Isotopes	43.RD	NNX10AH78G	45,969
Pass-through programs from:			
College of Charleston			
Anabolic Targeted Bioactive Nanoparticles for Osteoporosis Therapy	43.RD	19-NE-Clemson_Alexis-RGP	29,821
Discrete Element Methods: Realistic Modeling of Interactions Between Wheels and Sandy Soils - Fellowship for Timothy Reeves	43.RD	Timothy Reeves	1,000
Dynamic Tracking of Design Project Complexity for Project Performance Prediction - Fellowship for James Mathieson	43.RD	James Mathieson	499
Effects of Gamma Irradiation on Polymer Material Properties for Bearing and Structural Applications in Space	43.RD	18-SG-Clemson_Desjardins-PA	11,658
Establishing Objective Metrics and Protocols to Analyze Quality of Engineering Requirement Statements - Fellowship for Carl Lamar	43.RD	Carl Lamar	1,000
Graduate Research Assistantship for Brittany McGowan - Effects of Hydrostatic Pressure on the Differentiation of Bone Marrow Cells into Osteoblasts in 3D	43.RD	520589 Brittany McGowan	9,540
Graduate Research Assistantship for James Mathieson - Dynamic Tracking of Design Project Complexity for Project Performance Prediction	43.RD	520589 James Mathieson	9,274
Graduate Research Assistantship for Timothy Reeves - Discrete Element Methods: Realistic Modeling of Interactions Between Wheels and Sandy Soils	43.RD	520589 Timothy Reeves	9,318
Graduate Research Assistantship: Toward a Career on Advanced Materials Research for Space Applications	43.RD	520589 Ankoma Anderson	10,000
Hygrothermal Accelerated Aging of NASA Selected Epoxy for Potential Use in Engine Fan Cases	43.RD	18-SG-Clemson_Kennedy-PA	5,136

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Aeronautics and Space Administration, Continued			
Pass-through programs from College of Charleston, continued:			
Light-Weight Nanocomposites of Superior Thermal and Electrical Properties for Space Applications	43.RD	19-SG-Clemson_Sun-RGP	2,250
Magnetic Surface Enhanced Raman Spectroscopy Sensors	43.RD	18-SG-Clemson_Anker-PA	4,232
Nanostructured Surfaces and Surface Coatings for Magnetically Modulated Separations and Solar Arrays	43.RD	18-SG-Clemson_Mefford-PA	11,200
NASA EPSCoR RID Augmentation Travel Award Program - 2012	43.RD	20-NE-Clemson_Sun-T	701
Palmetto Academy 2012: Advanced Space Materials	43.RD	19-SG-Clemson_Sun-PA	2,250
Palmetto Academy 2012: Effects of Irradiation on Polymer Material Properties for Bearing and Structural Applications in Space	43.RD	19-SG-Clemson_DesJardins-PA	1,721
Palmetto Academy 2012: Nanostructured Surfaces and Surface Coatings for Photovoltaic Cells	43.RD	19-SG-Clemson_Mefford-PA	13,038
Palmetto Academy 2012: Surface Enhanced Raman Spectroscopy	43.RD	19-SG-Clemson_Anker-PA	10,423
Palmetto Academy 2012: Understanding the Effect of Ionizing Radiation on Articular Cartilage Biomechanics	43.RD	19-SG-Clemson_Dean-PA	7,895
Palmetto Academy Site on Advanced Space Materials	43.RD	18-SG-Clemson_Sun-PA	18,550
Quantifying the Effect of Radiation on Adult Articular Cartilage Tissue Function and Mechanics	43.RD	18-SG-Clemson_Dean-PA	16,128
Sustainable Packaging for MRE's and Surface-Modified Silver Nanoparticles for Anti-Microbial Surfaces	43.RD	18-SG-Clemson_Kitchens-PA	18,200
Utilizing Space-Based Technology to Determine Hydrological Properties for Watershed Management - Phase II	43.RD	18-NE-Clemson_Khalilian-RGP	14,110
Georgia Institute of Technology			
Design of Resilient Silicon Anodes	43.RD	R9872-S1	64,768
Jet Propulsion Laboratory			
Gas in Protoplanetary Systems - HERSCHEL Cycle-0	43.RD	1369554	17,363
Oxygen Isotope Ratios in Protoplanetary Disks	43.RD	1388734	5,220
Total National Aeronautics and Space Administration			980,512
Institute of Museum and Library Services			
The Open Parks Grid: the Gateway to Parks Information	45.RD	LG-05-10-0117-10	247,192
Total Institute of Museum and Library Services			247,192
National Science Foundation			
Graduate Research Fellowship - Austen Hayes	47.RD	Unknown	6,965
Graduate Research Fellowship - Brynna Laughlin	47.RD	Unknown	6,681
A National EPSCoR Cyberinfrastructure Student Engagement Program	47.RD	EPS-1132168	180,232
A Novel Concept for Micro-Power Generation Using Flow-Induced Self-Excited Oscillations	47.RD	CMMI-1000667	43,754
A Priori Analysis of Subgrid Molecular Transport Effects on High Pressure Turbulent Combustion Modeling	47.RD	CBET-0965624	82,186
Acquisition of Large-Memory, Many-Core Compute Node for Mathematical Science Research	47.RD	DMS-1026385	8,582
Algebraic Analysis of Parity Check Codes and Iterative Decoding	47.RD	DMS-0901693	35,902
Arabidopsis 2010: Collaborative Research: Evolution of Gene Position and Function in Arabidopsis Using Outgroup Genomes	47.RD	MCB-0820345	44,751
Atomistic and Mesoscopic Physics of Electrokinetic Transport Near Soft Surfaces	47.RD	CBET-0756496	10,822
Autonomous Distributed Local Computing Models Using Self-Stabilization	47.RD	CCF-0832582	11,672
Biochemistry and Physiology of Novel Acetate Kinases from Eukaryotic Microbes	47.RD	MCB-0920274	126,958
Biosystems Technology ATE Project	47.RD	DUE-0703117	5,143

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
BPC-AE: Collaborative Research: Strengthening and Expanding the Empowering Leadership Alliance	47.RD	CNS-0940534	17,661
BPC-AE: Collaborative Research: The Alliance for the Advancement of African-American Researcher in Computing (A4RC)	47.RD	CNS-0940533	32,841
BRIGE: Sustainable Methods for the Production of Anisotropic Metallic Nanoparticles Using Tunable Fluids	47.RD	EEC-0824443	19,802
Broadband Dielectric Spectrometers with 1-10 nm Planar Nanofluidic Channels	47.RD	ECCS-0925424	88,926
Capillary-Channeled Polymer (C-CP) Fiber Stationary Phases for High Speed and Preparative Protein Separation	47.RD	CHE-1011820	132,332
CAREER: A Novel Space-creation concept to Enhance the Survival and Functionality of Transplanted Human Stem Cells	47.RD	CBET-0748129	64,887
CAREER: Advancing the Mechanistic Understanding of Field-Scale Preferential Flow and Transport Processes in Soils Using Geophysics	47.RD	EAR-1151294	10,839
CAREER: Algorithmic Aspects of Ordinal Matching Problems	47.RD	CCF-0845593	88,582
CAREER: Brain Tissue Regeneration After Stroke	47.RD	CBET-1055922	48,545
CAREER: Changing the Landscape: Towards the Development of a Physics Identity in High School	47.RD	DRL-0952460	103,863
CAREER: Computational Modeling of Protein Evolvability	47.RD	MCB-0953783	91,890
CAREER: Creating Effective, Sustainable Inquiry-Based Instruction in Middle School Science Classrooms	47.RD	DRL-0952160	83,615
CAREER: Determining the Role of Metal Coordination in Selenium Antioxidant Activity. An Interdisciplinary Approach to Chemical Biology Education and Research	47.RD	CHE-0545138	21,773
CAREER: Electromechanical Transduction of Vibratory Energy Harvesters in Random and Non-Stationary Environments	47.RD	CMMI-1055419	91,085
CAREER: Energy and Charge Transfer Dynamics in Hypothermal Energy Ion-Surface Impacts	47.RD	CHE-0548111	(1,817)
CAREER: Incorporating Patient Heterogeneity and Choice into Predictive Models of Health and Economic Outcomes	47.RD	CMMI-1150732	507
ARRA - CAREER: Influence of Social Capital on Under-Represented Engineering Students' Academic and Career Decisions	47.RD	EEC-0950710	125,205
CAREER: Modeling Irrationalities of Designers to Support their Decisions for Net-Zero Energy Buildings	47.RD	CMMI-1054122	74,522
CAREER: Multiscale Thermomechanical Analysis of Nanomaterials and Nanostructures	47.RD	CBET-0955096	98,428
CAREER: Particle Magnetophoresis in Ferrofluid Microflows for Lab-on-a-Chip Applications	47.RD	CBET-1150670	4,435
CAREER: Student Motivation and Learning in Engineering	47.RD	EEC-1055950	62,725
CAREER: Supporting Patterns for Embedded Network Systems	47.RD	CNS-0745846	58,083
CAREER: The Evolution of Gas in Disks - Setting the Stage for Planet Formation	47.RD	AST-0954811	86,984
CAREER: Understanding Carbon Nanoassembly in Biological and Environmental Systems	47.RD	CBET-0744040	119,899
CAREER: Understanding Process-Induced Damage in Laser-Assisted Cell Direct Writing-Bridging Manufacturing Science and Biomedical Research	47.RD	CMMI-0747959	42,364
Carolina Dynamics Symposium 2012	47.RD	DMS-1201546	6,204
CEDAR - Experimental and Modeling Study of Mesoscale Ion-Neutral Coupling in the Auroral Thermosphere	47.RD	AGS-0640641	48,319
CEDAR Collaborative Research: Development and Application of a Multi-site Observing Network to Study Mid-latitude Thermospheric Dynamics	47.RD	AGS-1138931	42,530
CELDI: F-22 Dynamic Scheduling Assessment and Tool Development	47.RD	IIP-0641414	26,767
Center for Aviation and Automotive Technology Education Using Virtual E-School (CA2VES)	47.RD	DUE-1104181	151,685
Center for Aviation and Automotive Technology Using Virtual E-school (CA2VES): Workforce Preparedness for Automotive and Aviation Technicians	47.RD	DUE-0903226	3,605
Characterization of Liquefaction Resistance of Aged Soils	47.RD	CMMI-0556006	48,539

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Chemistry and the Logic of Life: A Research-Based, Integrated General Chemistry Curriculum	47.RD	DUE-0816692	153,326
CI Seeds: Seeding the Next Generation Cyberinfrastructure Ecosystem - REU Supplement	47.RD	OCI-1212680	7,500
CI-SEEDS: Seeding the Next Generation Cyberinfrastructure Ecosystem	47.RD	OCI-1212680	32,962
Collaborative Proposal: BPC-DP: Incorporating Cultural Tools for Math and Computing Concepts into the Boys and Girls Clubs of America	47.RD	CNS-0969240	48,765
Collaborative Research: "Hands-On" Collaborative Reasoning Across the Curriculum	47.RD	DUE-1022941	128,666
Collaborative Research: BeSocratic: A Free-form, Interactive System to Investigate the Development of Representational Competence	47.RD	DUE-1122472	49,934
Collaborative Research: Broader Impacts for Research and Discovery Summit	47.RD	CNS-1033492	34,936
Collaborative Research: CEDAR--Application of the RENOIR System in Brazil to Study the Gravity Wave Trigger Mechanism in the Production of Equatorial Spread F and Scintillations	47.RD	AGS-0940217	39,040
Collaborative Research: CEDAR--Observational and Numerical Studies of Tide-planetary Wave Coupling	47.RD	AGS-1139048	13,362
Collaborative Research: Characterization of Fractured Rock Aquifers Using Hydromechanical Well Tests	47.RD	EAR-0609960	212
Collaborative Research: Characterizing Climate-Induced Qualitative Changes in Plant Biopolymer Composition and Their Influence on Soil Processes	47.RD	DEB-1145993	2,520
Collaborative Research: Communicating Hurricane Information to Local Officials for Protective Action Decision Making	47.RD	SES-0838639	6,000
Collaborative Research: Comprehensive Investigation of Midlatitude Ionospheric Irregularities	47.RD	AGS-1007539	69,994
Collaborative Research: DUSEL Experiment Development and Coordination	47.RD	PHY-0834219	16,658
Collaborative Research: Effects of Hydrologic Processes on In Situ Stress Transients	47.RD	EAR-0944315	40,404
ARRA - Collaborative Research: Fiber-Optic Strain Monitoring of Rock Masses in Large Underground Facilities	47.RD	CMMI-0900163	65,787
Collaborative Research: Fluid Dynamics Foundations of Cell Printing	47.RD	CBET-0936235	42,265
Collaborative Research: G-SESAME Cloud: A Dynamically Scalable Collaboration Community for Biological Knowledge Discovery	47.RD	DBI-0960586	151,162
Collaborative Research: Hybrid Integration of Plasmonic Interferometer Sensors and Active Optoelectronic Devices on a Single Microfluidic Chip	47.RD	ECCS-1127957	35,940
Collaborative Research: Locking Nanoparticles	47.RD	CBET-0756457	36,489
Collaborative Research: Measurements and Modeling of Subgrid-Scale Turbulence in the Atmospheric Surface Layer	47.RD	AGS-0638392	96,168
Collaborative Research: Parasite or Partner? Causes and Consequences of Conditional Outcomes in a Cleaning Symbiosis	47.RD	DEB-0949780	5,235
Collaborative Research: Plasticity, Selection and Divergence in Stream Fishes of the Hawaiian Islands	47.RD	IOS-0817794	47,426
Collaborative Research: Processing and Properties of Cellulose Films for MEMS Applications	47.RD	CMMI-1130825	13,071
Collaborative Research: Reformulation-Linearization Technique for Discrete and Continuous Nonconvex Optimization with Applications	47.RD	CMMI-0968909	67,012
Collaborative Research: REU Site: Computational Algebraic Geometry, Combinatorics, and Number Theory	47.RD	DMS-1156761	78,944
Collaborative Research: The Role of Network Topology and Environmental Filtering in Shaping the Ecology of Spatially Structured Communities	47.RD	DEB-1025958	15,628
Collaborative Research: Topological States and Quantum Information in Semiconductors and Cold Atom Superfluids	47.RD	PHY-1104527	23,346
Collaborative Research: Forests of Magnetic Nanofibers for Liquid Transport and Manipulation	47.RD	CMMI-0825773	22,485

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Collaborative Research: G-SESAME Cloud: A Dynamically Scalable Collaboration Community for Biological Knowledge Discovery	47.RD	DBI-0960586	11,833
Collaborative Research: REU Site: Computational Algebraic Geometry, Combinatorics, and Number Theory	47.RD	DMS-1156761	1,525
Complete Reductive Dechlorination of Trichloroethylene (TCE) by non-Dehalococoides Microorganisms	47.RD	CBET-1102889	44,324
Complexity and Algorithms of Decoding Algebraic Codes	47.RD	CCF-0830581	74,812
Conjugated Polymer Nanoparticles for Nanoscale Chemical Microscopy	47.RD	CHE-1058885	54,461
Controlling and Enhancing Optical Gradient Forces in Integrated Optomechanical Devices	47.RD	ECCS-1101845	76,034
CPA-SEL: Collaborative Research-Continuing Progress Toward Verified Software	47.RD	CCF-0811748	48,330
CPATH EAE: TEXNH-Evaluation, Adoption and Extension	47.RD	CCF-0722313	11,002
CSR: Small: Efficient and Reciprocal File Replication and Consistency Maintenance in Pervasive Distributed Computing	47.RD	CNS-0917056	56,054
CSR-DMSS, SM, Harmony: Efficient Integrated Resource/Trust Management in Large-Scale Distributed Systems	47.RD	CNS-1025649	29,777
ARRA - CU Thinking	47.RD	EEC-0935163	114,777
CU Thinking: Research to Practice	47.RD	EEC-1048325	27,074
CU-STEP: Enhancing the Undergraduate Experience Through Research and Curriculum Development	47.RD	DUE-0525474	168,929
Design and Surface Engineering of Nanofiber-based Probes	47.RD	CMMI-0826067	832
Development of Performance-Based Design Guidelines for Integrating Phase Change Materials in Buildings	47.RD	CMMI-0927962	75,646
ARRA - Discovery and Predication of Hidden Biodiversity in Black Flies (Diptera: Simuliidae)	47.RD	DEB-0841636	98,756
EAGAR: Collaborative Research: Towards A Unified Wireless Network Involving Reconfigurable Devices	47.RD	ECCS-0948132	5,771
EAGER: A Study of the National Software Cyberinfrastructure Environment	47.RD	OCI-1129017	157,880
EAGER: Collaborative Research: A Peer-to-Peer Based Storage System for High-End Computing	47.RD	OCI-1064230	172,239
EAGER: GENI Experiments on Pervasive Data Sharing Over Heterogeneous Networks	47.RD	CNS-1049947	44,377
EAGER: PXFS - A Persistent Storage Model for Extreme Scale	47.RD	CCF-1142905	73,693
EAGER: Report on International Data Exchange Requirements (RIDER)	47.RD	OCI-1223688	10,394
EAGER: TIGER-Tight Integration of Grid Enabled Researchers	47.RD	OCI-1063679	169,901
EAGER: Transcriptome Analysis of CHO Cells to Improve Productivity and Control Protein Aggregation	47.RD	CBET-1218345	13,533
EAGER-GENI Experiments on Network Security and Traffic Analysis	47.RD	CNS-1049765	31,714
EFRI-BSBA: Multifunctional Materials and Devices for Distributed Actuation and Sensing	47.RD	EFRI-0937985	588,677
EFRI-CBE: Emerging Frontiers in 3-D Breast Cancer Tissue Test System	47.RD	EFRI-0736007	311,814
EFRI-COPN: Neuroscience and Neural Networks for Engineering the Future Intelligent Electric Power	47.RD	EFRI-1238097	32,432
Electromagnetic Scattering From 3-D Objects Buried in Layered Lossy Earth with Multiple Rough Interfaces	47.RD	ECCS-0821918	59,523
Emphasizing Core Calculus Concepts Using Biomedical Applications to Engage, Mentor and Retain STEM Students	47.RD	DUE-1044265	62,006
ARRA - Enabling Long-Time Accuracy in Turbulent Flow Simulations	47.RD	DMS-0914478	96,206
ERC-Small Business: Micropatterning of Film Extrusion Die Surfaces	47.RD	EEC-1128481	66,798
Establishing Clemson University as a Research Site for CELDI	47.RD	IIP-0641414	50,361
Evaluation of Nanoparticle Behavior During Transitions from Engineered to Natural Systems	47.RD	CMMI-1057633	162,892
Expanding the Clemson Calculus Challenge into Southeastern Regional Calculus Contest	47.RD	DMS-1118656	10,488

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Exploring the Physical Factors and Chemical Interactions Involved in the Adsorption of Synthetic Aromatic Compounds by Carbonaceous Adsorbents	47.RD	CBET-0730694	23,951
Fabrication of Double_Layer Cellular Spheroid Using Acoustic Excitation-Assisted Compound Jetting	47.RD	CMMI-1100402	29,725
Fabry-Perot Studies of Equatorial Thermospheric Dynamics and Composition: Part II	47.RD	AGS-0634671	49,814
Formation of Halonitromethanes and Nitrosamines During Ozonation in Drinking Water Treatment	47.RD	CBET-1066567	50,562
Fundamental Study of Carbon Dots for Fluorescence Bio-imaging/sensing	47.RD	CBET-0967423	37,355
Gene Flow and Divergence Across the Equatorial Tropical Marine Barrier: Past, Present and Future	47.RD	OCE-0961996	217,168
GOALI: Understanding Plasticization and Compaction Mechanisms in Perfluorocyclobutyl Polymer Thin Films and Membranes	47.RD	CBET-0966581	115,596
Graduate Research Fellowship Program	47.RD	DGE-0751278	40,506
Graduate Research Fellowship Program	47.RD	DGE-0751278	34,494
Graduate Research Fellowship Program	47.RD	DGE-0751278	40,506
Graduate Research Fellowship Program	47.RD	DGE-0751278	39,373
Graduate Research Fellowship Program	47.RD	DGE-0751278	45,328
Graduate Research Fellowship Program	47.RD	DGE-0751278	6,300
Graduate Research Fellowship Program	47.RD	DGE-0751278	39,762
Graduate Research Fellowship Program	47.RD	DGE-0751278	42,242
Graduate Research Fellowship Program	47.RD	DGE-0751278	41,756
Graduate Research Fellowship Program	47.RD	DGE-0751278	40,500
Graduate Research Fellowship Program	47.RD	DGE-0751278	201
Graduate Research Fellowship Program	47.RD	DGE-0751278	39,865
Graduate Research Fellowship Program	47.RD	DGE-0751278	38,931
Graduate Research Fellowship Program	47.RD	DGE-0751278	35,488
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	72,979
GSE/RES: Sustainability Topics as a Route to Female Recruitment in Engineering	47.RD	HRD-1036617	189,447
HCC: Small Eye Movement in Stereoscopic Displays, Implications for Visualization	47.RD	IIS-0915085	139,567
HCC: Small: Conversational Agents in Web-Based Consumer Environments Designed for Older Users	47.RD	IIS-0955763	138,288
High Temperature Hydro Thermal Synthesis and Crystal Growth of Inorganic Oxides	47.RD	DMR-0907395	147,037
How Does the Plant Say-No More?: A Molecular Genetic Approach to Nodule Number Regulation	47.RD	IOS-1146014	36,586
Human-Centered Computing Scholars: Fostering a New Generation of Underrepresented and Financially Disadvantaged Researchers	47.RD	DUE-1060545	32,294
I/UCRC CGI: I/UCRC for the Ceramic, Composite and Optical Materials Center	47.RD	IIP-1034979	75,831
I-Corps: A Novel Surgical Simulator for Eventuating and Training Force-based Laparoscopic Skills	47.RD	IIP-1247508	412
I-Corps: Drug-eluting Sutures	47.RD	IIP-1242516	5,000
Image Reconstruction In Diffuse Optical Tomography With Sparsity Constraints	47.RD	DMS-0915214	53,066
Improved Methods for Incompressible Viscous Flow Simulation	47.RD	DMS-1112593	22,497
Individual Nomination (PAESMEM)	47.RD	DUE-1101770	971
Integrative Situated Design: Linking Functions and Affordances Through Form	47.RD	CMMI-0826441	50,200
Interacting Partners of the SUNN Symbiotic Regulatory Kinase	47.RD	IOS-0950700	65,950
International Collaboration in Chemistry: Preparation and Utilization of SF5-Containing Building Blocks	47.RD	CHE-1124859	72,937
Inverted Colloidal Crystal Membranes	47.RD	CBET-0651231	49,202
Investigation of the Thermoelectric Performance of PbTe-Ag2Se Derived Pseudo-solid Solutions, Nanostructures and Nano-composites	47.RD	DMR-0905322	9,956

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Investigations of the Size Effects on the Relaxation Rates of Polymer Coated Magnetic Nanoparticles for Hyperthermia	47.RD	DMR-0907167	65,533
Materials World Network: Switchable Polymer Interfaces for Bottom-Up Stimulation of Mammalian Cells	47.RD	DMR-1107786	66,816
Materials World Network: US-China Collaborative Partnership on Eco-Friendly High Performance (Si, Sn)-Based Thermoelectric Nanocomposite Materials	47.RD	DMR-1008073	8,172
Mathematics Partnering With Computer Science to Improve Calculus Instruction and Learning	47.RD	DUE-0817442	32,032
Mixed Convection Gas Transfer Across Surfactant - Contaminated Air/Water Materials	47.RD	CBET-0500155	(1,364)
Modeling of Data Transmission Process for Wireless Sensors on Industrial Rotating Structures	47.RD	CMMI-0728035	1,158
Molecular Physics of the Electrical Double Layer in Ionic Liquids	47.RD	CBET-0967175	58,277
MRI: Acquisition of Nikon A1R-MP Confocal/Multiphoton Microscope With Widefield HyperSpectral Imaging System for the Jordan Hall Imaging Facility	47.RD	DBI-1126407	161,966
MRI: Development of a Laser Microbioparticle Separator	47.RD	CBET-0923311	159,323
MRI: Development of the Intelligent River (R), A Basin-Scale Monitoring Instrument	47.RD	CNS-1126344	123,639
ARRA - MRI-R2: Acquisition of a Highly Charged Ion Beamline for Interdisciplinary Materials Research and Education at Clemson University	47.RD	DMR-0960100	212,376
Multi-Institutional Mechatronics and Material Handling Educational Laboratories- Course Development and Student Collaboration	47.RD	DUE-0632800	26,823
Multiscale Computational Analysis of Nanoelectromechanical Systems (NEMA)	47.RD	CMMI-0800474	46,508
Nanoscale Surface Adsorption and Disorder in Battery Materials	47.RD	DMR-1006515	96,725
NEDG: Mechanisms for Efficient and Reliable Routing in Hybrid Wireless Networks	47.RD	CNS-1025652	94,129
Network Target Coordination for Complex System Optimization	47.RD	CMMI-1129969	73,595
Numerical Approximations of Non-Newtonian Fluid Flows With Applications	47.RD	DMS-1016182	58,891
Observations of Warm Gas in Transitional Disks Around Herbig Ae/Be Stars: Interpreting Their SEDs	47.RD	AST-0708899	2,917
OrganicPad: A Tablet PC-Based Interactivity Tool for Organic Chemistry	47.RD	DRL-0735655	45,697
ARRA - Organized Materials for Plastic Electronics: Divided Pi-Ways and Platinum Energy Canopies	47.RD	CHE-0847132	127,525
Palmetto Number Theory Series/SouthEast Regional Meeting on Numbers	47.RD	DMS-1101301	8,769
Particle Electrophoresis in Curved Microchannels: Fundamentals and Applications	47.RD	CBET-0853873	27,739
Periodic Stochastic Processes	47.RD	DMS-0905570	18,815
ARRA - Predictive Energy Management in Smart Vehicles: Exploiting Traffic and Terrain Preview for Fuel Savings	47.RD	CMMI-0928533	92,811
Quantitative Structure-Adsorbability Relationships for the Adsorption of Organic Chemicals by Carbon Nanotubes	47.RD	CBET-0967425	91,895
RAPID: Impact of Earthquakes on the Electricity Infrastructure Technology	47.RD	ECCS-1216298	18,690
RET Site: Engineering Fibers and Films Experience (EFF-X)	47.RD	EEC-0602040	4,127
REU Site: Advanced Functional Membranes	47.RD	EEC-1061524	93,421
REU Site: Interfaces and Surfaces: Exploring and Experiencing Science (I SEE Science)	47.RD	DMR-1062873	86,492
REU Site: Computation, Combinatorics, and Number Theory	47.RD	DMS-0552799	11,097
REU Site: Summer Program in Applied Psychology	47.RD	SMA-1004413	97,269
ARRA - REU Site: Undergraduate Research in Human-Centered Computing	47.RD	CNS-0850695	35,423
RI: Medium: Collaborative Research: Real-Time Continuum Manipulation	47.RD	IIS-0904116	76,061
RI: Small: Interactive Perception for Manipulating Non-Rigid Objects	47.RD	IIS-1017007	121,139
ARRA - Science Master's Program: Sustainable and Resilient Infrastructure	47.RD	DGE-1011478	292,706
Selenium Antioxidant Mechanisms: Metal Binding vs. Reactive Oxygen Species Scavenging	47.RD	CHE-121392	2,215
Semi Fluorinated Polymers: Forming Energy Controlled Responsive Interfaces	47.RD	DMR-0907390	87,328
SHB: Small: An Assistive, Robotic Table [ART] Promoting Independent Living	47.RD	IIS-1116075	33,709

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
SHF: Small: RUI: Collaborative Research: Accelerators to Applications - Supercharging the Undergraduate Computer Science Curriculum	47.RD	CCF-0916387	78,132
ARRA - Spectroscopy of Solar-Type Stars: Fundamental Problems in Stellar Astrophysics	47.RD	AST-0908342	71,130
The Changing Face of Andean Urbanism: Sociopolitical Change at El Purgatorio, Camsa Valley, Peru	47.RD	BCS-0814338	5,003
The Evaluation of Life Histories in Geminate Echinoderms: A Comparative Approach to Unscrambling the Relationships Among Environment, Egg Size, and the Energetics of Development	47.RD	OCE-0850764	114,842
The Geography of Proliferating Conservation Easements	47.RD	BCS-1068906	45,425
Tigers Teach Noyce Scholarship	47.RD	DUE-1136293	25,387
Topics on Computational Algebra	47.RD	DMS-1005369	70,220
Transforming Robust Design Concept into a Novel Geotechnical Design Tool	47.RD	CMMI-1200117	29,063
Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics (TUES)	47.RD	DUE-1043707	3,366
Understanding the Macroscopic Dynamics of Ultrasonic Consolidation	47.RD	CMMI-1068977	105,387
Use of Chiral Tracers to Determine Cycling of POPs in Stream Ecosystems	47.RD	CBET-0828699	90,551
Vehicle-Infrastructure Integration Enabled Plug-In Hybrid Electric Vehicles for Energy Management	47.RD	CMMI-0928744	133,514
Pass-through programs from:			
3F, LLC			
Biocomponent Fiber Spinning and Characterization of Spun Fibers	47.RD	IIP-0956907	52,193
Advanced Photonic Crystals, LLC			
Hydrothermal Growth of Potassium Beryllium Fluoroborate (KBBF) for Deep UV Nonlinear Optical Applications	47.RD	2011000162	67,563
SBIR Phase I: Hydrothermal Growth of Potassium Beryllium Fluoroborate (KBBF) for Deep UV NonLinear Optical Applications	47.RD	2011000158	1,246
Advanced Plasma Products Inc			
Disinfection of Produce with Atmospheric Plasma	47.RD	001	(1,551)
Advanced Thermal Technologies, LLC			
Rheological Characterization and Melt-Spinning of Industrial Mesophase Pitch Precursors	47.RD	IIP-1038760	69,973
Appalachian State University			
STEM and ICT Instructional Worlds: The 3-D Experience (STEM-ICT 3D)	47.RD	ASU 08-0217	53,672
BBN Technologies			
ARRA - A Mobile Programmable Radio Substrate for Any-layer Measurement and Experimentation	47.RD	9500010081 1740	508
Campus Trials of Enterprise GENI	47.RD	9500010314 1833A-REU	11,073
ARRA - Clemson Campus Trials of Enterprise GENI: Enabling Measurement and Control of Network Traffic over Campus Ethernet, Wireless Mesh, and Vehicular Networks	47.RD	9500010146 1833A	51,592
GENI WIMAX at Clemson	47.RD	1843A/PO# 9500011083	15,172
CHK Group, Incorporated			
Manufacturing High Performance Cementitious Materials Using Rice Hull Ash	47.RD	None	16,467
Clemson University Research Foundation			
CAREER: Control of Processes Actuated with Mobile Radiant Sources	47.RD	CMMI-1055254	33,551
CAREER: Model-Based Control of Machining Processes and Scalability for Manufacturing System Control	47.RD	CMMI-0954318	25,447
Center for Electromagnetic Compatibility	47.RD	IIP-0934299	40,803
Collaborative Research: I/UCRC in Painting/Coating application and Surface Inspection Systems	47.RD	IIP-1067995	2,022

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Pass-through programs from Clemson University Research Foundation, continued:			
Collaborative Research: Pattern Transfer Nanomanufacturing with Magnetically-Recorded Nanotemplates	47.RD	CMMI-1130819	41,078
ARRA - Expanding and Improving the C-Light Regional Optical Network	47.RD	OAI-0963199	38,219
GOALI: Model-Based System Fault Diagnosis and Prognosis: Passive Robustness and Aging Prediction	47.RD	PO#RF01145992 - 60016267	13,231
Machining Accuracy Improvement Through Visual Control of an Active Display	47.RD	0800507	30,279
Materials World Network in Advanced Glasses for Novel Optical	47.RD	DMR-0807016	10,197
ARRA - South Carolina Inter- and Intra- Campus Cyber Connectivity (C2)	47.RD	2011-703 (EPS-1006833)	6,269
Student Participation Grant for National Manufacturing Conferences: 2012 ASME MSEC and SME NAMRC 40; University of Notre Dame, South Bend, Indiana; June 4-8, 2012.	47.RD	CMMI-1156247	23,026
Computing Research Association			
2010 CI Fellow-Diedra Morrison	47.RD	CIF-A-332	26,410
Fayetteville State University			
Examining the Impact of Online Distance Education on Student Learning and Student Engagement in STEM Disciplines at Historically Black Colleges and Universities	47.RD	NSF HBCU-UP 09-10 211210-01	13,675
Examining the Impact of Online Distance Education on Student Learning and Student Engagement in STEM Disciplines at Historically Black Colleges and Universities	47.RD	NSF HBCU-UP 211210-01	17,444
Iowa State University			
A Model for Data-driven Reform in Chemistry Education	47.RD	420-21-84A	408
Medical University of South Carolina			
Accelerated Elastin Assembly in Vascular Constructs Through Suppression of Proteoglycans	47.RD	MUSC11-107	13,845
Structure and Dynamics of the Spider Dragline Silk Assembly Process	47.RD	MUSC11-106	49,366
Nanoscience Engineering Corporation			
ERC-SBIR/STTR Collaborative Request: Center for Advanced Engineering Fibers and Films (nanoSEC)	47.RD	IIP-0646447	3,868
Pennsylvania State University			
TRPGR: Comparative Genomics of Environmental Stress Responses in North American Hardwoods	47.RD	4375-CU-NSF-5974	213,365
Purdue University			
Characterizing and Modeling the Experience of Transfer Students in Engineering	47.RD	4101-38563	76,918
South Carolina Research Authority			
ARRA - 2009 Research Infrastructure Improvement Grant (RII)	47.RD	2002-593 TO#0061	151,244
ARRA - EPSCOR Desktop to TeraGrid Ecosystem: Integrating Campus-Based with National Cyberinfrastructure	47.RD	2002-593 TO#0062 (EPS-0919440)	325,881
South Carolina State University			
A Partnership in Observational and Computational Astronomy (POCA)	47.RD	08-586009-BAPS-CU-SC	91,677
Louis Stokes Alliance for Minority Participation (SCAMP) - Year 4	47.RD	10-581003-SCAMP-CU-SC/PO#P1102134	81,072
Louis Stokes Alliance for Minority Participation (SCAMP) - Year 5	47.RD	11-581004-SCAMP-CU-SC/PO#1202173	81,241
The Academy of Natural Sciences			
Survey and Inventory of the Aquatic Insects of the Altai and Hangai Mountain Drainages, Mongolia	47.RD	502-3000-7553	3,932
University of Alabama			
NEESR-CR: NEESsoft-Seismic Risk Reduction for Soft-Story, Wood Frame Buildings	47.RD	10-075	40,760
University of Central Florida			
REU Site: International Program on Optics, Lasers, Photonics and Optical Materials	47.RD	176726	690
University of Florida			
EXTENCI: Extending Science Through Enhanced National Cyberinfrastructure	47.RD	UF10121	68,793
The South East Alliance for Graduate Education and Professoriate	47.RD	UF05036	72,664

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
National Science Foundation, continued			
Pass-through programs, continued:			
University of Massachusetts Amherst			
Collaborative Research: Ecohydrology of Deep Crystalline Rocks at Dusel Homestake	47.RD	10-005772B00	14,751
University of North Carolina - Chapel Hill			
CI-Team Implementation Project: Embedded Immersive Engagement for Cyberinfrastructure	47.RD	5-54657	37,917
University of Oklahoma			
NEESR-SG: Understanding and Improving the Seismic Behavior of Pile Foundations in Soft Clays	47.RD	2009-46	5,978
University of Tennessee			
MIDGE: A Collaborative Effort to Increase Taxonomic Expertise in Understudied Families of Nematocerosus Diptera	47.RD	8500012914	2,127
University of North Carolina Wilmington			
iPhone/iPod Touch/iPad as Interactive Personal Response System	47.RD	571480-11-01	14,497
Winston Salem State University			
Mixed Methods Study of the Factors Influencing Recruitment, Retention, and Academic Achievement of African American Undergraduate Females and Males in Math, Science, and Engineering Disciplines	47.RD	210271 A	57,066
Total National Science Foundation			14,491,101
Small Business Administration			
An Innovation Center at the Clemson University Advanced Materials Center	59.RD	SBAHQ-10-I-0022	26,012
An Innovation Center at the Clemson University Advanced Materials Center	59.RD	SBAHQ-10-I-0278	39,684
Total Small Business Administration			65,696
Department of Veterans Affairs			
Nanoparticle Coupled Antioxidants for Respiratory Illness in Veterans	64.RD	VA 247-P-1705 PO#534-D17140	39,929
Total Department of Veterans Affairs			39,929
Environmental Protection Agency			
Behavior of Carbon Nanomaterials in Aqueous Suspensions of Natural Organic Matter	66.RD	RD-83388601-0	136,634
Ben Sharp - Modeling Switchgrass Production in South Carolina Based on Farmer's Decisions: A Stochastic and Spatial Analysis	66.RD	FP-91717201	12,781
Defining Significant Nexus with Navigable Waters for Small, Relatively Isolated Wetlands in the Piedmont Ecoregion	66.RD	CD95488711	93,264
Demonstration of Alternate Nematode Management Strategies to Reduce Pesticide Usage While Enhancing Water Quality and Farm Profit	66.RD	X8-95436709	20,455
EPA Fellowship Award for Chelsea Woodworth	66.RD	MA-91725701	5,713
EPA Fellowship for Stephen Cotter	66.RD	MA-91720901-0	25,000
Influence of Water Quality on the Bioavailability and Food Chain Transport of Carbon Nanoparticles	66.RD	RD-83409201-0	36,217
Map Inventory and Assessment System for Geographically Isolated Wetlands in the Upper Piedmont and Foothills of South Carolina	66.RD	CD-95415309-0	28,707
Power Field Monitoring Equipment with Wetland Detritus Using Microbial Fuel Cells	66.RD	SU-83470301	(414)
STAR Fellowship for Thomas Ross Garner	66.RD	FP-91713301	15,702
Understanding and Managing Risks Posed by Brines Containing Dissolved Carbon Dioxide	66.RD	RD-83438301	246,941

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Environmental Protection Agency, Continued			
Pass-through programs from:			
Industrial Economics Incorporated			
Design Feasibility Study for Innovations in Building Repurposing through Vertical Farming	66.RD	8070-Clemson/EP-W-10-002	38,750
North Carolina State University			
Less Rain Down the Drain: Disconnecting Stormwater Systems to Restore Black Creek	66.RD	2010-0838-01	6,693
South Carolina Department of Health and Environmental Control			
Development of a Guide for the Identification of Aquatic Macroinvertebrates of South Carolina and Surrounding States	66.RD	805143	24,031
Upstate Forever			
Market-Based Mechanisms for Promoting Low-Impact Development, Mitigating Legacy Stormwater Discharges and Restoring Urban Floodplains in Saluda-Reedy Watershed	66.RD	None	21,178
William Marsh Rice University			
EPA/STAR - Environmental Impact of Nanox	66.RD	R16992	123,402
Total Environmental Protection Agency			835,054
Nuclear Regulatory Commission			
Development of Coupled On-Line and Hands-on Radiation Detection and Radiochemistry Laboratory Courses			
	77.RD	NRC-38-09-972	108,645
Junior Nuclear Environmental Engineering and Science Faculty Support			
	77.RD	NRC-38-10-921	89,527
US NRC Nuclear Education Program Scholarship and Fellowship			
	77.RD	NRC-38-08-956	59,265
Total Nuclear Regulatory Commission			257,437
Department of Energy			
Asymmetric Hybrid Nanoparticles (AHNs)	81.RD	DE-FG02-06ER46342	209,343
BioEthanol Collaborative	81.RD	DE- FG36-08G088071	275,925
Clemson University CyberInstitute	81.RD	DE-SC0001984	790,186
Development of New Analytical Capabilities for the Measurement of Fundamental Thermodynamic Parameters Supporting Advanced Fuel Cycle Chemistry at Clemson University			
	81.RD	DE-NE0000445	170,583
Effects of Impurities on Fuel Cell Performance and Durability			
	81.RD	DE-FG36-07G017011	76,949
From Interfaces to Bulk: Experimental - Computational Studies Across Time and Length Scales of Multi Functional Ionic Polymer			
	81.RD	DE-SC0007908	4,448
ARRA - Fundamentals & Advanced Power Systems Certificate Programs for Training the Power Industry Sector			
	81.RD	DE-OE0000466	226,551
Grain Boundary Complexions and Transitions in Doped Silicon			
	81.RD	DE-FG02-08ER46511	122,169
Innovative Water Management Technology to Reduce Environmental Impacts of Produced Water			
	81.RD	DE-NT0005682	121,943
Investigation of the Next Generation Solid State Power Conversion Materials			
	81.RD	DE-FG02-04ER46139	93,222
Multiscale Modeling of Grain Boundary Segregation and Embrittlement in Tungsten for Mechanistic Design of Alloy for Coal Fired Plants			
	81.RD	DE-FE0003892	89,207
Proof of Feasibility of Using Well Bore Deformation As A Diagnostic Tool To Improve Co2 Sequestration			
	81.RD	DE-FE0004542	91,074
Quantifying Microbe-mineral Interactions Leading to Remotely Detectable Induced Polarization Signals: Implications for Monitoring Bioremediation			
	81.RD	DE-SC0002280	28,500
Study of Hydrophobic and Ionizable Hydrophilic Copolymers at Polymer/Solid and Polymer/Liquid Interfaces			
	81.RD	DE-FG02-07ER46456	34,225
Surface Anchoring of Nematic Phase on Carbon			
	81.RD	DE-FG02-07ER46364	67,520

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Energy, Continued			
Pass-through programs from:			
Battelle Energy Alliance, LLC			
Predictive Maturity of Multi-Scale Simulation Models for Fuel Performance	81.RD	00101999	225,924
Center for Transportation			
Southeast Regional Electric Vehicles Planning Program	81.RD	Prime award # DE-EE0005579	116,165
Clemson University Research Foundation			
Beyond the Lambertian Limit--Novel Low-Symmetry Gratings for Ultraviolet Light			
Trapping Enhancement in Next-Generation Photovoltaics	81.RD	27773 (Prime#DE-EE0005327)	41,954
Compact, Highly Sensitive and Specific Mid-Infrared (MIR) Chemical Sensors	81.RD	DE-NA0000421	314,774
Decommissioning of Pulse Column Assembly at CLU	81.RD	BOA-10888-O4914-CU05	26,168
De-Inventory of MOX Property at CETL	81.RD	BOA-10888-O4914-CU04	762
Development of a Self-Consistent Model of Plutonium Sorption: Quantification of Sorption Enthalpy and Ligand-Promoted Dissolution	81.RD	DE-SC0004883	167,891
Electroalcohologenesis: Bioelectrochemical Reduction of CO ₂ to Butanol - ARRA	81.RD	MUSC10-063	133,034
Fluoropolymers, Electrolytes, Composites and Electrodes	81.RD	DE-FG02-05ER15718	146,059
GATE Center of Excellence in Sustainable Vehicle Systems	81.RD	DE-EE0005571	172,081
Glove Box Pressure Control Device In-Situ Testing	81.RD	BOA-10888-O4914-CU02	10,649
Integrating Light-Weight Automotive Materials	81.RD	200929-130171	21,483
ARRA - Iodine, Radium and Strontium Geochemistry in Wetland and Subsurface Sediments	81.RD	WEST169 TOA KR44880-O	31,839
Lignin Recovery and Purification	81.RD	None	49,636
Nuclear Forensics Junior Faculty Award Program	81.RD	11-1857	31,887
Nuclear Forensics Junior Faculty Award Program-DHS	81.RD	12-2011	9,612
Nucleation and Crystallization Studies	81.RD	WEST198 SC0276	11,486
Quantification of Cation Sorption to Engineered Barrier Materials Under Extreme Conditions	81.RD	120716	22,098
Research Support to Build and Test Components of the Pit Disassembly Conversion Facility Design, Collect Data, Write Reports, Make Design Observations	81.RD	DE-EM0000901	590,755
Stabilization of PU Surface Complexes on Mineral Colloids by Natural Organic Matter	81.RD	B597372	52,540
Technetium Sorption to Cementitious Materials	81.RD	WEST197 SC0277	32,123
Lawrence Livermore National Laboratory			
Stabilization of PU Surface Complexes on Mineral Colloids by Natural Organic Matter	81.RD	B593386	45,902
Los Alamos National Laboratory			
The Influence of Adding Physics on the Predictive Maturity of a Code	81.RD	84093-001-10	17,861
Louisiana State University			
Catalytic Processes for the Synthesis of Ethanol from Coal-Derived Syngas	81.RD	9422	(1)
Computational Catalysis and Atomic-level Synthesis of Materials: Building Effective Catalysts from First Principles	81.RD	41924	167,512
Medical University of South Carolina			
Nuclear Forensics Education Award Program	81.RD	MUSC10-114/IDNE012A	21,394
Nuclear Forensics Education Award Program	81.RD	MUSC12-012	23,126
MWH Americas, Incorporated			
Laboratory Evaluation of Biostimulation to Treat Chlorinated Ethenes in the Chatsworth Formation, Santa Susana Field Laboratory, Ventura Co., CA	81.RD	S1010919-96944-OF	33,847
NanoSonic, Incorporated			
Nanoscale Approach to High Performance Thermoelectric Composites	81.RD	E-4317	56,321
SCUREF			
Access to Clemson Imaging instrumentation	81.RD	WEST201	1,885
ARRA - Aerosol Delivery for Vadose Zone Remediation	81.RD	WEST178	6,358
Electron Microscope Center Imaging Instrument Access	81.RD	WEST199	8,008
Harmonic Detection of Resonance for the Study of Fluoride Attack of Surfaces	81.RD	WEST172	45,202

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Energy, Continued			
Pass-through programs from SCUREF, continued:			
Incorporating Aerobic Processes Into Remedies for Large Chlorinated Solvent (cVOC) Plumes	81.RD	WEST177	10,115
Nanoscale Arrays for Tritium Detection	81.RD	WEST184	68,025
Phase II- Examination of the Electrical Properties of Conductive Polymers and OLEDs In Weak Electrostatic Fields	81.RD	WEST166	58,342
Technical Review and Comments on SRS Environmental Report for 2011 and 2012	81.RD	SRNS001	36,091
Technical Review/Comments to SRS Environmental Report for 2009	81.RD	WEST168	2,589
Wild Fire Ignition Resistant Home Design	81.RD	WEST179	17,090
South Carolina Energy Office			
Greenville County EVSE Infrastructure Study	81.RD	None	26,647
Wind Energy Supply Chain and Offshore Wind Economic Impact Study	81.RD	None	50,000
South Dakota State University			
Regional Biomass Feedstock Partnership - Biomass Residue Removal	81.RD	3TG146	37,445
Southern States Energy Board			
ARRA - Southeast CO2 Sequestration Technology Training Program (SECARB-ED)	81.RD	SSEB-SECARB_ED-920-CLEM-2009-001	15,022
TECHFISH, LLC			
ARRA - Lignin Recovery and Purification	81.RD	DE-SC0003312	172,495
University of Georgia			
Environmental Protection of DOE Lands: Studies in Long-Term Stewardship	81.RD	RR267-420/4893886	960
Environmental Protection of DOE Lands: Studies in Long-Term Stewardship	81.RD	RR267-700/3840938	2,126
University of Illinois			
Characterizing the Combined Roles of Iron and Transverse Mixing on Uranium Bioremediation in Groundwater Using Microfluidic Pore Networks	81.RD	A3018 2008-04979-01	106,491
UT-Battelle, LLC			
Novel Software Storage Architecture	81.RD	4000111689	169,417
R&D Building Reliable Data Transfer Tool	81.RD	4000108178	78,601
Giga-Bit Interface Module for SNS Physical Layer Communications Standard	81.RD	4000086349	10,605
Resilient Home Program Support	81.RD	4000087337	279,127
Total Department of Energy			6,179,368
Department of Education			
Fulbright-Hays-Faculty Research Abroad	84.RD	P019A100055	45,548
Pass-through programs from:			
Greg Mathis Charter High School			
Greg Mathis Charter High School - Turnaround Project	84.RD	H63010010411	43,216
Iowa State University			
Professional Development for Algebra Progress Monitoring	84.RD	432-28-07	83,674
Orangeburg County Consolidated School District 3			
PD12/Orangeburg School District 3/Professional Development for Integrated Inquiry	84.RD	None	27,966
South Carolina Department of Education			
LeadSMART - Title 1 School Improvement	84.RD	11BA302-01	202,805
Spartanburg School District 7			
ARRA - PD12 Professional Development for Integrated Inquiry	84.RD	None	17,713
University of Central Florida			
MILMI - International Masters in Laser Materials and Interactions	84.RD	166253	90,758
University of Louisville			
A Longitudinal Study of the SC Personal Pathways to Success Initiative	84.RD	ULRF 08-0181-04	257,224

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Education, continued			
Pass-through programs, continued:			
University of Michigan			
Lifelong Learning Curriculum Transformation Project	84.RD	3002053929	2,982
University of South Carolina			
Center for Adolescent Research in Schools (CARS)	84.RD	PO#41793(13580 FA84)/12-2043	165,880
Total Department of Education			937,766
Election Assistance Commission			
2010 Voting Technology and Accessibility Research - Accessible Voting Technology Initiative			
	90.RD	EAC110149A	842,602
Total Election Assistance Commission			842,602
Department of Health and Human Services			
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	5P20RR021949-03	10,990
ARRA - A Forward Genetics Screen for Genes Regulating Phagocytosis and Signaling in Enta	93.RD	1R21AI081100-01	125,454
A Multi-Level, Cohort-Sequential Study of Rural Adolescent Dating Violence Victimization and Perpetration	93.RD	1R01HD067505-01A1	258,314
A Novel Colon-Specific Bi-Functional Amebicidal Therapeutics: Gal-Dextran-MM	93.RD	5R03AI076869-02	17,562
Avian Middle Ear Development	93.RD	5R01DC009236-04	301,247
Bioengineering Approach to Understanding TMJ Pathology	93.RD	5F31DE020230-02	49,320
Biomaterials for Guided Neural Regeneration-Center of Biomaterials for Tissue Regeneration	93.RD	8P20GM103444-04	177,597
Biomechanical Characterization of Human Cartilaginous End-Plate	93.RD	5R03AR055775-02	28,501
Biophysical Modeling of Fluid and Solute Transport in the TMJ Disc - ARRA	93.RD	5R03DE018741-02	63,722
Cardiac-Cell Mechanics at the Single-Cell Level: Properties & Interactions	93.RD	5K25HL092228-04	165,390
Cardiovascular Tissue Engineering in Diabetes	93.RD	5R21EB009835-02	186,120
Center of Biomaterials for Tissue Regeneration (CBTR)	93.RD	8P20GM103444-04	849,434
Controlling Fatty Acid Synthesis in African Trypanosomes	93.RD	3R15AI081207-01A1S1	54,792
Role of Lipids Rafts and Phosphoinositides in E. Histolytica Virulence	93.RD	5 R01 AI046414-09	58,786
DelPhi: Software for Electrostatic Modeling of Biomolecules	93.RD	5R01GM093937-01	377,467
Development of Ets2 - Inhibitors	93.RD	1R15CA125724-01A2	69,912
ARRA - Development of Ets2 - Inhibitors	93.RD	3R15CA125724-01A2S1	24,904
Development of Scar-Inhibiting Compliant Tissue Adhesive	93.RD	5R21EB008785-02	109,065
Differentiation of Bone-Marrow Stem Cells in a Laser Patterned Myocyte Coculture	93.RD	5 K25HL088262-04	142,535
Elastin-derived Scaffolds for Tissue Engineered Small Diameter Vascular Grafts	93.RD	5R03TW008941-02	60,212
Electromechanical Imaging of Live Vascular Smooth Muscle Cells	93.RD	5R21RR024449-02	136,826
Enabling Technology for Brain Tissue Regeneration-Center of Biomaterials for Tissue Regeneration	93.RD	8P20GM103444-04	146,361
Enhancing Patient Safety for Nurses Through Virtual Pediatric Patient Interaction	93.RD	1R03HS020233-01	46,221
ARRA - Epidemiology of Sexual Violence: A Trajectory-Based Approach	93.RD	1R15HD065568-01S1	77,337
Epidemiology of Sexual Violence: A Trajectory-Based Approach (supplement grant)	93.RD	Unknown	(2,196)
Epidemiology of Sexual Violence: A Trajectory-Based Approach (supplement grant)	93.RD	3R15HD065568-01S1	27,680
Exploratory Study of Carbon-Based Quantum Dots	93.RD	5 R21EB007489-03	1,560
GAGs: Function and Fixation in Bioprosthetic Heart Valves	93.RD	5R01HL070969-08	318,470
Health Coaches for Hypertension Control	93.RD	D04RH12726-03-00	92,281
High-Performance Membrane Chromatography for Protein Purification	93.RD	1R15GM094676-01	51,353
Histology and Imaging Core-Center of Biomaterials for Tissue Regeneration	93.RD	8P20GM103444-04	202,744
Improved Spray Scavenging of Particulates Via Acoustical Excitation of Drop Oscil	93.RD	5R01OH009546-03	166,754
Integrating Biomechanics & Cell Biology to Understand TMJ Pathology	93.RD	1R01DE021134-01A1	4,117
Materials Synthesis and Characterization-Center of Biomaterials for Tissue Regeneration	93.RD	8P20GM103444-04	235,246
Mechanically Guided Urological Tissue Regeneration-Center of Biomaterials for Tissue Regeneration	93.RD	8P20GM103444-04	115,954

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Health and Human Services, continued			
Mechanisms of Arsenic-Induced Developmental Toxicity	93.RD	1R15ES016640-01	24,942
ARRA - Mechanisms of Immunological Adaptation to a Harsh Chemical Environment	93.RD	1R15ES016905-01A1	35,484
Nutrient Sensing and Hexokinases in T. Brucei	93.RD	1R15AI075326-01A1	20,518
Nutrient Sensing and Hexokinases in T. Brucei	93.RD	2R15AI075326-02 revised	40,556
Nutrient Sensing and Hexokinases in T. Brucei	93.RD	3R15AI075326-01A1S1	244
Polymer Dot Nanoparticles for Detection of Single Molecules in Live Cells	93.RD	5 R01 GM081040-04	43,816
Role of Mei5-Sae3 in Meiotic Homologous Recombination	93.RD	5R01GM098510-02	207,107
Skin Cancer Detection Using Polarized Light Spectroscopic Methods	93.RD	1R15CA131808-01 Revised	1,055
South Carolina Rural Communities Compassion Project	93.RD	90EJ0095/03	49,885
Stem Cell-myocyte Electrical Coupling-Center of Biomaterials for Tissue Regeneration	93.RD	8P20GM103444-04	2,449
Stem Cell-myocyte Electrical Coupling-Center of Biomaterials for Tissue Regeneration	93.RD	8P20GM103444-04	180,854
Student Provider Perceptions of Latino Patients in Cancer Care Settings	93.RD	1R15CA135349-01A2	90,746
ARRA - The Effect of Single Nucleotide Polymorphisms on Protein Structure and Interaction	93.RD	5R03LM009748-02	12,207
The Presence of A Bacterial Metabolic Pathway in Eukaryotic Fungi	93.RD	1R15GM084417-01A1	98,549
The Role of CAR and PXR in Gender Predominant P450 Expression and Induction	93.RD	1R15ES017321-01A1 REVISED	18,000
Tissue Engineered Aortic Heart Valves: Scaffolds & Stem Cells	93.RD	5R01HL093399-02	312,340
Tissue Engineering in Spinal Cord Regeneration	93.RD	5R01NS050243-05	414,444
Towards Stents with Drug-Eluting Tethered Polymers	93.RD	1R15HL088670-01A1	8,759
Trans-generational Impact of Maternal Obesity and Diabetes on Health Disparities	93.RD	5R01MD004251-02	169,178
Vibratory Mechanotransduction	93.RD	5R21EB009489-02	117,520
Xanthine DNA Glycosylase in Mammalian Systems	93.RD	1R15GM090141-01	46,896
Pass-through programs from:			
Bite Technologies, LLC			
Assessing the Bite Counter as a Tool for Food Intake Monitoring	93.RD	CU-01	31,289
Cell & Tissue Systems, Incorporated			
SBIR Phase II: Design and Assessment of a Compliant Nanofibrous Vascular Graft	93.RD	SBIR Phase II	64,508
Chesterfield County Coordinating Council			
Drug Free Chesterfield	93.RD	SP13611	36,782
Children's Hospital Boston			
Novel Angiogenesis Inhibitors Targeting the Anthrax Toxin Inhibitors	93.RD	PO# 0000461506 / 70855	24,260
Novel Angiogenesis Inhibitors Targeting the Anthrax Toxin Inhibitors	93.RD	PO#0000461505 / 76953	15,484
Novel Angiogenesis Inhibitors Targeting the Anthrax Toxin Receptors	93.RD	76953/PO # 0000356080	62,426
Novel Angiogenesis Inhibitors Targeting the Anthrax Toxin Receptors	93.RD	PO # 0000253732	98,888
Cleveland Clinic Lerner College of Med			
Cues for Cell-Mediated Regeneration of Vascular Elastin to Stabilize Aortic Aneurysms	93.RD	183SUB	39,613
ARRA - Cues for Cell Mediated Regeneration of Vascular Elastin to Stabilize Aortic Aneurysms	93.RD	118SUB	1,697
East Carolina University			
Understanding the Formation of Nanoparticle-Protein Corona Impact on Cellular Uptake and Activation	93.RD	A11-0020-S001	13,705
Emory University			
Group Interventions for Abused, Suicidal Black Women	93.RD	S513420	30,898
Medical University of South Carolina			
Dual Mode Mass Spectrometry Platform for Increasing Depth in Proteomic Analysis	93.RD	MUSC09-109	1,123
Methods for Retrospective Multi-Site Research	93.RD	MUSC12-046	5,678
NUBAD, LLC.			
A Rapid Assay for RNA Targeted Drugs	93.RD	N08-29-2011	60,877
Rutgers, The State University of New Jersey			
Coarse Grained Modeling of Biomolecule-Copolymer Conjugate Systems	93.RD	4705/S1694198	7,812
Development of Molecular Modeling Methods to Simulate Protein Adsorption to Polymer Surfaces	93.RD	S1543487 4433 433677 10578	97,116
Integrated Technologies for Polymeric Biomaterials	93.RD	4071 432361 10578	77
South Carolina Department of Alcohol and Drug Abuse Services			
Military Families and Prescription Drugs FY2011 SEOW Data Gap Analysis	93.RD	CLEM-CAST-11	15,877

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, Continued			
Department of Health and Human Services, continued			
Pass-through programs, continued:			
South Carolina Department of Health and Environmental Control Environmental Health Risk Perception Survey	93.RD	MAR-2011-16	7,600
South Carolina Department of Social Services Safe Families	93.RD	None	56,250
Strengthening SC Systems in Support of Quality Child Care Programs	93.RD	None	42,749
Strengthening South Carolina Systems in Support of Quality Child Care Programs	93.RD	C11016H-2/5000011142	31,989
University of Georgia Risk, Resilience and Disorder: African Americans Transitioning to Adulthood	93.RD	RR376-333/4690828	16,520
University of Michigan Effects of the Built Environment, Crime and Food Prices on BMI, Activity and Eating	93.RD	3002239275	4,051
University of South Carolina ARRA - Creation of an Integrated Consent Process for Biospecimen Collection and Community Research Participation in South Carolina	93.RD	PO#21809/10-1747	(3,678)
ARRA - Creation of an Integrated Consent Process for Biospecimen Collection and Community Research Participation in South Carolina	93.RD	PO#31854L/11-1874	198,854
Ecology of Upland Snakes in the Southern Blue Ridge	93.RD	PO#32166 (22050-FA15)/11-1923	391
Ecology of Upland Snakes in the Southern Blue Ridge	93.RD	PO#41551(18020-FA84)/12-1997	6,310
Effects of the Built Environment, Crime and Food Prices on BMI, Activity and Eating	93.RD	PO#22061/10-1774	10,326
Improving Safety and Access for Physical Activity	93.RD	07-1431/PO# 72627(13580-FA56)	1,678
NIH - INBRE-SC IDeA Networks of Biomedical Research Excellence	93.RD	PO#31923L/22050-Z147	5,506
Palmetto State - Geriatric Education Center	93.RD	PO#31940(18190-FJ12)/11-1900	1,682
Palmetto State Geriatric Education Centers	93.RD	PO#41535(18190-FJ16)/12-1996	20,995
SC Cancer Disparities Community Network II (Community Core-Year 2)	93.RD	PO#41751(11500-FA1B)/12-2036	15,131
SC Cancer Disparities Community Network II (Community Outreach Core)	93.RD	PO#31993(22080-FA36)/11-1903	9,934
South Carolina IDeA Networks of Biomedical Research Excellence (INBRE)	93.RD	PO#41591L/22050-Z161	204,251
Using Gold Nanorods to Modify the Extracellular Matrix and Mechanical Properties of Cardiac Valves	93.RD	10-1727(18020 FA59)/PO#21683L	17,346
University of Texas Austin A Novel Approach for the Design and Development of Vavular Replacement Biomaterials	93.RD	UTA12-000570	2,432
University of Washington Nanoscale Investigation of Protein-surface Interactions	93.RD	348092/5 R01 GM074511-02	1,242
Widmeyer Communications Bullying Prevention Campaign Phase V	93.RD	None	77,819
Bullying Prevention Campaign: Option Year of Phase IV in HRSA's Stop Bullying Now Campaign	93.RD	None	48,338
Total Department of Health and Human Services			8,033,407
United States Agency for International Development			
Pass-through programs from:			
Virginia Polytechnic Institute Building Local Capacity in IPM Solutions	98.RD	451071-19244	175,771
Ecologically-Based Partic IPM-SE Asia	98.RD	425976-19244	206,525
Total United States Agency for International Development			382,296
Vietnam Education Foundation			
Fellowship for Hung Hoang Manh Vo	99.RD	Hung Hoang Manh Vo	29,285
Khanh Van Thi Nguyen Fellowship	99.RD	Khanh Van Nguyen	4,303
Van Tran Fellowship	99.RD	Van Tran F09034F	1,002
Total Vietnam Education Foundation			34,590
Total Research and Development Cluster			56,334,042

(Continued)

**CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012**

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
STUDENT FINANCIAL ASSISTANCE CLUSTER			
Department of Education			
Federal Supplemental Educational Opportunity Grants	84.007		417,534
Federal Work Study Program	84.033		536,714
Federal Work Study Program - Federal Job Location and Development	84.033		49,783
Federal Perkins Loan Program Federal Capital Contributions	84.038		216,285
Federal Pell Grant Program	84.063		12,550,581
Federal Direct Loans	84.268		80,001,233
Academic Competitiveness Grants	84.375		1,950
National Science and Mathematics Access to Retain Talent (SMART) Grants	84.376		30,000
Total Department of Education			<u>93,804,080</u>
Total Student Financial Assistance Cluster			<u>93,804,080</u>
SNAP CLUSTER			
Department of Agriculture			
Pass-through programs from:			
South Carolina Department of Social Services SNAP Outreach Community Partnership Program	10.561	5000011542	106,098
Total Department of Agriculture			<u>106,098</u>
Total SNAP Cluster			<u>106,098</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	11CO302-01	747
Project CREATE: Center for ReEducation and Advancement of Teachers in Special Education	84.027	12CO302-01	2,380
Total Department of Education			<u>3,127</u>
Total Special Education Cluster			<u>3,127</u>
STATE FISCAL STABILIZATION FUNDS CLUSTER			
Department of Education			
Pass-through programs from:			
South Carolina Department of Education ARRA Stimulus Funds - Lee Hall Renovation	84.394	None	3,329,410
ARRA Stimulus Funds - Student System	84.394	None	363,711
Total Department of Education			<u>3,693,121</u>
Total State Fiscal Stabilization Funds Cluster			<u>3,693,121</u>

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
OTHER PROGRAMS			
Department of Agriculture			
2011 Forest Stewardship Newsletter	10.UNK	None	4,000
Acquisition of Goods and Services	10.001	58-6659-0-103	391
Acquisition of Goods and Services	10.001	58-6659-0-106	788
Advancing Animal Disease Traceability in South Carolina	10.025	11-9645-1042-CA	48,637
CAPS - Tier 1 and Pest of National Concern	10.025	12-8245-0380-CA	41,201
CAPS (Tier 1 and Pest of National Concern) P ramorum	10.025	11-8245-0380-CA	76,796
Cooperative Pesticide Recordkeeping Program	10.025	12-25-A-5394	44,930
Cooperative Pesticide Recordkeeping Program	10.025	12-25-A-5587	30,913
Emerald Ash Borer (EAB)	10.025	11-8245-0648-CA	16,274
Emerald Ash Borer National Survey	10.025	12-8245-0648-CA	54,823
Equine, Cervids and Small Ruminants	10.025	12-9645-1144-CA	718
Farm Bill Honey Bee Survey	10.025	11-8245-0829-CA	2,141
Farm Bill P ramorum National Nursery Survey	10.025	11-8245-0830-CA	2,162
Farm Bill Tomato Commodity Survey	10.025	11-8245-0831-CA	365
Foreign Animal Disease (FAD) Surveillance Cooperative Agreement 2011	10.025	11-9645-0114-CA	44,090
Imported Fire Ant	10.025	11-8245-0178-CA	27,897
Imported Fire Ant	10.025	12-8245-0178-CA	27,002
Maintenance of Membership Laboratory Requirements (NAHLN Member Lab Assistance)	10.025	11-9419-0164-CA	55,000
NAHLN- LIMS Integration Consulting	10.025	12-9419-0095-CA	964
NAHLN-LIMS Integration Consulting	10.025	11-9419-0095-CA	61,000
Notifiable Avian Influenza Prevention and Control Program for LBMS (2011)	10.025	11-9645-0954CA	54,274
Notifiable Avian Influenza Prevention and Control Program for NPIP (2011)	10.025	11-9645-0955CA	140,593
Notifiable Avian Influenza Program for NPIP and LBMS (2012)	10.025	12-9645-1147-CA	19,297
Noxious Weed (Tropical Soda Apple)	10.025	11-8245-0310-CA	9,878
Phorid Flies Survey and Release	10.025	11-8245-0657-CA	6,714
Scrapie Eradication in South Carolina	10.025	11-9645-1102CA	10,000
Slow Sand Filtration System for P. ramorum	10.025	11-8245-0794-CA	6,138
Swine Garbage Feeding Surveillance	10.025	11-9645-0277CA	29,962
Swine Health Program	10.025	12-9645-1145-CA	2,697
Witchweed	10.025	11-8245-0028-CA	13,331
Witchweed	10.025	12-8245-0028-CA	229
Zoonotic & Foreign/Emerging Diseases Management	10.025	12-9645-1146-CA	5,513
A Coordinated Extension IPM Training Program for South Carolina to Address Stakeholder Needs in Key Commodities	10.500	2010-41534-21538	193,141
Cooperative Extension Service - Smith Lever	10.500	Unknown	7,058,815
Development of a New Web Based Database System	10.500	2009-38834-20276	2,703
Development of a New Web Based Database System	10.500	2010-38834-20823	97,767
Development of Extension IPM Training in South Carolina to Address Stakeholder Needs in Key Commodities	10.500	2009-41534-05445	3,608
Reducing Ground Water Hazards in Low Income Rural South Carolina Counties Through Increased Recycling and Landfill Gas Use	10.762	Loan # 11 46-039-576000254	82,469
Blackville Farmers Market Manager	10.769	Loan 10 46-039-576000254	10,011
Expansion of Innovation Center	10.769	Loan # 09 46-039-576000254	19,276
Expansion of Innovation Center	10.769	Loan 7 46-039-576000254	5,496
Pee Dee Regional Agritourism Initiative	10.769	RBEG Loan # 005 46-039-576000254	2,276
Rural Business Enterprise Grant (RBEG) - Technical Assistance	10.769	Loan 6 46-039-576000254	3,238
SC LEADS	10.769	Loan # 08 46-039-576000254	34,073
Development of Training Workshops for Weed Control and a SC NRCS Pamphlet: Weed Suppression Using Rolled Cover Crops (Organic)	10.902	68-4639-11-0027	5,037
Development of Training Workshops for Weed Control and a SC NRCS Pamphlet: Weed Suppression Using Rolled Cover Crops (Weed)	10.902	68-4639-11-0026	46,509
5 Borlaug Fellows to Clemson University	10.962	58-3148-8-148	35,953
Pass-through programs from:			
South Carolina Forestry Commission			
Cogongrass Detection, Eradication and Education Project	10.UNK	None	35,539
South Carolina Department of Agriculture			
Canning Coaches for Safe Home Preservation of Locally Grown Specialty Crops	10.170	12-25-B-1253	15,265

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
OTHER PROGRAMS, Continued			
Department of Agriculture, continued			
Pass-through programs from South Carolina Department of Agriculture, continued:			
Implement Plan of Work for the Southern Region Sustainable Agriculture Research & Education (SARE) Program	10.215	RD309-109/4786226	5,028
University of Florida			
Educating and Training Future Farmers, Researchers and Extension Personnel in Sustainable Agriculture (Clemson subcontract with the University of Florida)	10.215	UF10245	17,784
University of Georgia			
Implement Plan of Work for the Southern Region Sustainable Agriculture Research & Education (SARE) Program	10.215	RD309-117/4893516	9,262
Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education Professional Development (PDP) Program	10.215	RE675-116/4892336	3,675
Michigan State University			
Food Borne Norovirus in Elder Care Facilities: An Integrated Approach to Prevention and Control	10.303	61-4299CU	2,768
Texas A&M University			
The Southern Region Water Resource Project	10.303	451009	35,424
University of Georgia			
National Center for Home Food Processing and Preservation	10.303	RE256-131/4893626	2,952
University of Florida			
Southern Region Plant Diagnostic Network	10.304	00068711/00069555	32,985
Building Entrepreneurial, Business Management and Land Stewardship Capacity for South Carolina New and Beginning Farmers	10.311	2010-49400-21735	190,831
South Carolina Meat-Poultry Inspection - Cross Utilization	10.475	12-37-A-427	73,028
South Carolina Meat-Poultry Inspection Department - Compliance	10.475	BASE11	28,668
South Carolina Meat-Poultry Inspection Department - In Plant	10.475	BASE11 12-37-A307	259,337
South Carolina Meat-Poultry Inspection Department - Laboratory	10.475	BASE11	5,316
South Carolina Meat-Poultry Inspection Department - All Other	10.475	BASE11	53,482
South Carolina Meat-Poultry Inspection Department - All Other	10.475	BASE12	142,119
South Carolina Meat-Poultry Inspection Department- Compliance	10.475	BASE12	84,296
South Carolina Meat-Poultry Inspection Department - Cross Utilization	10.475	Cross Util	168,156
South Carolina Meat-Poultry Inspection Department - In-Plant	10.475	BASE12	799,713
South Carolina Meat-Poultry Inspection Department - Laboratory	10.475	BASE12	22,049
South Carolina Meat-Poultry Inspection Department - PHDCIS '12	10.475	FY 2012 PHDCIS	2,670
State PHDCIS Project - FAIM11	10.475	PHDCIS11 (FAIM)	992
Auburn University			
Healthy Homes Project	10.500	10-ACES-374584-CU	3,385
Kansas State University			
4-H Air Force Military Partnership Project	10.500	S11115	26,458
4-H Military Partnerships: 4-H Army Youth Development Project	10.500	S12046	80,483
4H/Army Youth Development Project; KS, Operation Military Kids	10.500	S08049	18,193
South Carolina 2011 OSD/Operation Military Kids Camp	10.500	S11142	27,519
South Carolina 2012 Military 4-H Club Support	10.500	S12128	11,382
South Carolina 2012 Office of Secretary of Defense/Operation Military Kids Camp (SC 2012 OSD/OMK Camp)	10.500	S12238	13,246
South Carolina OMK Local/Regional Support Network (L/RSN) - Darlington Area	10.500	S12158	16,196
South Carolina OMK Local/Regional Support Network (L/RSN) - GLNS Region	10.500	S12109	8,911
Purdue University			
Military Community Family and Youth Extension Program	10.500	8000047940 / 2010-48869-20781	4,024
University of Georgia			
Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education Professional Development (PDP) Program	10.500	RE675-161/4786086	6,377
Southeastern Beef Cattle Risk Management Education Project	10.500	RE670-099/4690838	(17)
West Virginia State University			
Health Literacy for Military Families	10.500	CE-0704-0002	7,556
South Carolina Department of Social Services			
Supplemental Nutrition Assistance Program (SNAP-ED) for Clemson University	10.580	5000012249/6200000101	68,333

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
OTHER PROGRAMS, Continued			
Department of Agriculture, continued			
Pass-through programs, continued:			
Saluda County			
Saluda County: Agribusiness Strategic Plan with an Emphasis on Developing Local Assets	10.769	2012000687	9,987
Total Department of Agriculture			<u>10,734,191</u>
Department of Commerce			
Pass-through programs from:			
Barnwell County			
Barnwell County: Agribusiness Strategic Plan with an Emphasis on Industrial Park Development	11.010	9/14/2011	65,117
South Carolina Sea Grant Consortium			
Coastal & Marine Recreation and Tourism Outreach Partnership: SCSGC/Clemson PRTM - Year 2	11.417	M237-A/E-1e Year 2	52,558
Coastal and Marine Recreation and Tourism Outreach Partnership	11.417	M337-A/E-1b	35,979
Total Department of Commerce			<u>153,654</u>
Department of Defense			
Visual Image Safety (VIMS) Conference 2011	12.300	N00014-11-1-0835	14,314
Pass-through programs from:			
South Carolina Army National Guard			
Rich Media Coordinator	12.UNK	4100013833/4100019464	15,787
SC Army National Guard Agribusiness Development Team (AADT) Training	12.UNK	W912QG-11-C-0002	60,254
Total Department of Defense			<u>90,355</u>
Department of Homeland Security			
Pass-through programs from:			
South Carolina Law Enforcement Division			
Regional Food and Agriculture Sector Criticality Assessment Project	97.067	8SHSP17	20,796
SC Ag-Watch 2008	97.067	8SHSP16	3,183
SC Ag-Watch: Enhancements of State's Animal Health Data Management System	97.067	9SHSP02	100,000
Upstate Regional EOD Enhancement - IED Detection Canine Team	97.067	9SHSP32	(784)
Total Department of Homeland Security			<u>123,195</u>
Department of Housing and Urban Development			
Pass-through programs from:			
Greenville Housing Authority			
Proposal for the Evaluation of the Jesse Jackson Community of the Housing Authority of the City of Greenville, SC	14.UNK	Hope VI Evaluation Services	51,372
Total Department of Housing and Urban Development			<u>51,372</u>
Department of the Interior			
The Open Parks Grid Project (CESU)	15.UNK	H5000085050 / J5041100026	90,942
Total Department of the Interior			<u>90,942</u>
Department of Justice			
Pass-through programs from:			
South Carolina Department of Public Safety			
Disproportionate Minority Contact Research Project	16.540	1J09006	63,188
Disproportionate Minority Contact Research Project	16.540	1J11001	45,511

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
OTHER PROGRAMS, Continued			
Department of Justice, continued			
Pass-through programs, continued:			
National 4-H Council			
SC 4-H Tech Wizards Mentoring Program	16.726	2010-OJJDP-MNTR-10	53,185
SC Tech Wizards 2012	16.726	2011-OJJDP-MNTR-137	34,850
South Carolina Department of Alcohol and Drug Abuse Services			
Palmetto Initiative for Campus/Community Collaborative	16.727	CLE-PICC-1	6,418
Palmetto Initiative for Campus-Community Collaboration	16.727	CLE-PICC-2	10,351
National 4-H Council			
York County 4-H Catawba Mentoring Program/Tribal Youth	16.731	Prime# 2011-TY-FX-0031/2011-OJJDP-MNTY-163	7,414
Public/Private Ventures			
ARRA - AMACHI Subaward on Recovery Act National Youth Mentoring Programs	16.808	10138	170,200
Total Department of Justice			391,117
Department of State			
International Research & Exchanges Board	19.408	FY10-ILEP-Clemson-01	58
International Leaders in Education Program (ILEP)	19.408	FY11-ILEP-Clemson-01	187,044
Total Department of State			187,102
Department of Transportation			
Pass-through programs from:			
South Carolina Department of Transportation			
State Work Zone Safety Training Program	20.UNK	PO #369014/377336	262,922
South Carolina Department of Transportation			
Transportation Technology Transfer Service (T3S)	20.UNK	1432; Proj No. 88L56E2011011	160,305
Transportation Technology Transfer Service (T3S)	20.UNK	1522; Proj No. 88L56E2012012	210,131
Total Department of Transportation			633,358
National Aeronautics and Space Administration			
A Multi-Instrument Study of Electron-Positron Annihilation in the Milky Way	43.UNK	NNX09AC80 G	16,089
Pass-through programs from:			
College of Charleston			
Inspiring the Engineers of Tomorrow through Enhanced Engineering Course			
Material for Early Childhood and Elementary Pre-service Teachers	43.UNK	19-SG-Clemson_Rosenblith	2,124
College of Charleston			
NASA EPSCoR RID Augmentation Travel Award Program - 2012	43.001	20-NE-Clemson_Khalilian-T	1,182
Total National Aeronautics and Space Administration			19,395
National Endowment for the Arts			
2011-2012 Southern Circuit Filmmakers Tour	45.UNK	None	1,800
Pass-through programs from:			
The Research Foundation of State University of New York			
Your Town: Citizens for Rural Design	45.UNK	57086	21,993
Total National Endowment for the Arts			23,793
National Science Foundation			
Collaborative Research: Communicating Hurricane Information to Local			
Officials for Protective Action Decision Making	47.075	SES-0838639	44,960
Biosystems Technology ATE Project	47.076	DUE-0703117	3,037
Clemson University MAT Noyce Scholarship Program for Middle Grades Education	47.076	DUE-0733711	(19,635)
Southeastern Regional Noyce Conference	47.076	DUE-1062155	95,779

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
OTHER PROGRAMS, Continued			
National Science Foundation, continued			
Pass-through programs from:			
University of Nebraska - Lincoln			
GEAR-Tech-21 Camp	47.076	None	1,262
GEAR-Tech-21 Camp 2012	47.076	None	921
Total National Science Foundation			<u>126,324</u>
Small Business Administration			
Pass-through programs from:			
University of South Carolina			
Small Business Administration Jobs Act	59.UNK	PO#32207L/1-603001-Z-0149	57,762
Small Business Development Center - Operating Grant (Federal)	59.037	Federal	317,839
Total Small Business Administration			<u>375,601</u>
Department of Veterans Affairs			
Developing Wellness Through Focused Health Coaching	64.UNK	VA247-P-1735 PO#544-C15474	121,935
Pass-through programs from:			
South Carolina State Office of Veterans Affairs			
Developing Wellness Through Focused Health Coaching	64.UNK	Unknown	(3,813)
Total Department of Veterans Affairs			<u>118,122</u>
Environmental Protection Agency			
Pass-through programs from:			
Commonwealth of Virginia			
Animal Waste Analysis for Commonwealth of VA	66.460	319-2009-10V	27,673
Animal Waste Analysis for Commonwealth of VA	66.460	319-2011-15-V	10,528
2011-2013 Certification and Training Pesticide Programs Cooperative Agreement	66.700	E98463811	273,524
2011-2013 Enforcement Pesticide Programs Cooperative Agreement	66.700	E98463611	286,624
2011-2013 Special Pesticide Programs Cooperative Agreement	66.700	E98463711	291,689
Total Environmental Protection Agency			<u>890,038</u>
Department of Energy			
ARRA Recovery Act: Clemson University Wind Turbine Drivetrain Test Facility	81.087	EE0003023	12,726,025
Total Department of Energy			<u>12,726,025</u>
Department of Education			
Applied International Monetary Economics	84.116	P116J090063	19,189
The Consortium for Small and Medium-size Enterprises and Entrepreneurship Education (SMEEE)	84.116	P116J080038-08	6,398
Transatlantic Double Degree in International Business	84.116	P116J090006	43,530
Transatlantic Exchange in Economics (TREE)	84.116	P116J060029	(1,728)
Special Education-Personnel Preparation to Improve Services and Results for Children with Disabilities	84.325	H325D080056-11	165,051
Supporting Expertise for Leaders in Early Childhood Teaching (SELECT)	84.325	H325K070106	102,139
National Center for Dropout Prevention	84.326	H326Q030002-07	22,788
National Dropout Prevention Center for Students with Disabilities	84.326	H326W080003	803,561

(Continued)

CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
OTHER PROGRAMS, Continued			
Department of Education, continued			
Pass-through programs from:			
Communities In Schools of Chester County 21st Century Community Learning Centers Grant	84.UNK	None	12,166
South Carolina Department of Education Agriculture Teacher Education and Professional Development	84.UNK	4000015033	41,264
South Carolina Department of Education Agricultural Education Teacher Education Grant	84.048	11VA302-43	7,845
Cherry Grove FFA Camp Caretaker	84.048	12VA302-42	22,066
Iowa Department of Education OBPP Trainer Certification Course in Des Moines, IA	84.184	024112	8,116
South Carolina Department of Education 21st Century Community Learning Center - Youth Development Center and Youth Challenge Academy	84.287	12CL302-03	56,392
21st Century Community Learning Center - Youth Development Center and Youth Challenge Academy	84.287	11CL302-03	121,341
21st Century Community Learning Center - Summer Enrichment Program	84.287	11CL302-04	34,815
21st Century Community Learning Center - GoalPOST I	84.287	12CL302-01	127,105
21st Century Community Learning Center - GoalPOST I	84.287	11CL302-02	5,397
21st Century Community Learning Center - GoalPOST II	84.287	12CL302-02	303,876
21st Century Community Learning Center - GoalPOST II	84.287	11CL302-01	44,840
University of Tennessee Clemson University State Outreach and Technical Assistance Center (CUSOTC)	84.326	OR9003-001-.05 106295	32,086
South Carolina Department of Education Inquiry Based Learning: A Companion Course for the Biology End of Course Exam	84.366	12MS302-01	22,860
Inquiry Based Learning: A Companion Course for the Biology End-of-Course Test	84.366	11MS302-01	45,912
South Carolina Commission on Higher Education iPad Technology in Middle Grades Mathematics: Meeting the Need for Highly Technologically Qualified Teachers FY 2011-12	84.367	None	53,375
Meeting the Need for Highly Qualified Mathematics Teachers - FY 2010-11	84.367	None	9,780
Meeting the Need for Highly Qualified Mathematics Teachers - FY 2011-12	84.367	None	55,882
Project RES: Reform-based Environmental Science - FY 2010-11	84.367	ITQ 2010-2011	20,375
Project RES: Reform-Based Environmental Science - FY 2011-12	84.367	ITQ 2011-2012	70,140
Project RES: Reform-Based Environmental Science FY 2011-12 Supplemental Grants	84.367	FY 2011-12 Supplemental	33,054
The Ohio State University Reading Recovery: ARRA - Scaling Up What Works	84.396	60029187	396,931
National Writing Project Commissioned Work from NWP	84.928	Commissioned work	17
Upstate Writing Project	84.928	01-SC11	49,046
Total Department of Education			2,735,609
Department of Health and Human Services			
Drug Free Communities Support Program	93.276	5 H79-SP012145-10	18,481
2011 Advanced Education Nursing Traineeship	93.358	1 A10HP22080-01-00	15,913
Building Dreams: A Mentoring Program for Children of Prisoners	93.616	90CV0557/01	129,758
Building Dreams: CIS Expansion	93.616	90CV0482 / 02	48,172
Pass-through programs from:			
American Institutes for Research Eat Healthy - Be Active	93.UNK	799.02595.001	2,786
South Carolina Department of Social Services Title IV-E Training to Serve "Crossover Youth" in SC	93.658	Task Order #1	32,022
University of South Carolina ARRA - Health Information Technology Extension Program: Practice and Workflow Design to Support Meaningful Use of HER	93.718	PO#31611L/11-1835 (22000-FL05)	15,706
University of South Carolina A Partnership to Promote Physical Activity and Healthy Eating in AME Churches	93.837	07-1313/11530 FA29 PO#71659,71660	41,835
South Carolina Department of Health and Environmental Control City of North Charleston Community Garden Projects	93.UNK	R7-2-443	2,983
Total Department of Health and Human Services			307,656

(Continued)

**CLEMSON UNIVERSITY, SOUTH CAROLINA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
FOR THE YEAR ENDING JUNE 30, 2012**

Federal grantor/pass-through grantor/program title	Federal CFDA Number	Pass-through/ Grantor's Number	Total Expenditures
OTHER PROGRAMS, Continued			
Corporation for National and Community Service			
Pass-through programs from:			
South Carolina Department of Education Builders of Tomorrow Service Learning Grant (Year 2)	94.004	12FA302-01	5,566
Total Corporation for National and Community Service			<u>5,566</u>
Department of Homeland Security			
Department of Homeland Security Personnel Agreement	97.UNK	John A. Caver	26,250
Total Department of Homeland Security			<u>26,250</u>
Total Other Programs			<u>29,809,665</u>
Total Federal Expenditures			<u><u>\$ 183,750,133</u></u>

CLEMSON UNIVERSITY
NOTES TO THE SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

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 POLICES 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.

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, 2012, were based on predetermined fixed rates negotiated with the University's cognizant federal agencies.

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 \$8,276,169 as of June 30, 2012.

NOTE 4 - MATCHING

Under the FWS program, the University matched \$177,837 in total compensation for the year ended June 30, 2012 in addition to the federal share of expenditures in the accompanying schedule of expenditures of federal awards.

Under the FSEOG program, the University matched \$779,040 in funds awarded to students for the year ended June 30, 2012, in addition to the federal share of expenditures in the accompanying schedule of expenditures of federal awards.

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 represented in the schedule, the University provided federal awards to subrecipients as follows:

	Federal CFDA number	Amount provided to subrecipients
Department of Agriculture	10.200	\$ 38,910
Department of Agriculture	10.206	30,353
Department of Agriculture	10.253	10,548
Department of Agriculture	10.303	262,460
Department of Agriculture	10.311	43,517
Department of Agriculture	10.500	13,894
Department of Agriculture	10.561	76,805
Total Department of Agriculture		476,487
Department of Defense	12.UNK	183,322
Department of Defense	12.351	238,054
Department of Defense	12.420	38,981
Department of Defense	12.431	106,768
Department of Defense	12.800	146,932
Department of Defense	12.910	311,853
Total Department of Defense		1,025,910
Department of Interior	15.UNK	427
Department of Interior	15.805	12,524
Total Department of Interior		12,951
Department of Justice	16.808	29,250
Total Department of Justice		29,250
Department of Transportation	20.UNK	19,992
Department of Transportation	20.108	103,086
Total Department of Transportation		123,078
Institute of Museum and Library Services	45.312	40,327
Total Institute of Museum and Library Services		40,327

(Continued)

NOTE 6 - SUBRECIPIENTS, Continued

National Science Foundation	47.041	322,358
National Science Foundation	47.049	27,292
National Science Foundation	47.070	103,894
National Science Foundation	47.074	27,332
National Science Foundation	47.076	136,413
National Science Foundation	47.080	56,188
National Science Foundation	47.081	30,688
National Science Foundation	47.082	117,595
Total National Science Foundation		<u>821,760</u>
Environmental Protection Agency	66.419	11,433
Environmental Protection Agency	66.509	175,163
Total Environmental Protection Agency		<u>186,596</u>
Nuclear Regulatory Commission	77.066	1,092
Total Nuclear Regulatory Commission		<u>1,092</u>
Department of Energy	81.UNK	184,880
Department of Energy	81.049	114,032
Department of Energy	81.057	14,348
Department of Energy	81.089	40,414
Department of Energy	81.113	192,683
Total Department of Energy		<u>546,357</u>
Department of Education	84.051	9,789
Department of Education	84.116	4,000
Department of Education	84.287	118,269
Department of Education	84.396	1,995
Total Department of Education		<u>134,053</u>
Election Assistance Commission	90.403	599,107
Total Election Assistance Commission		<u>599,107</u>
Department of Health and Human Services	93.286	15,891
Department of Health and Human Services	93.307	7,642
Department of Health and Human Services	93.389	70,450
Department of Health and Human Services	93.395	6,280

(Continued)

NOTE 6 - SUBRECIPIENTS, Continued

Department of Health and Human Services	93.616	20,000
Department of Health and Human Services	93.837	189,425
Department of Health and Human Services	93.853	122,502
Department of Health and Human Services	93.859	287,785
Department of Health and Human Services	93.865	72,274
Department of Health and Human Services	93.989	44,162
		<hr/>
Total Department of Health and Human Services		836,411
		<hr/>
Agency for International Development	98.001	196,500
		<hr/>
Total Agency for International Development		196,500
		<hr/>
		<u>\$ 5,029,879</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 the financial statements of the business-type activities and the aggregate discretely presented component units of Clemson University (the University), a department of the State of South Carolina, as of and for the year ended June 30, 2012, which collectively comprise the University's basic financial statements and have issued our report thereon dated October 2, 2012. Our report was modified to include a reference to other auditors. We conducted our audit in accordance with 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. Other auditors audited the financial statements of the Clemson University Research Foundation and the Clemson University Foundation, as described in our report on the University's financial statements. The financial statements of the Clemson University Research Foundation and the Clemson University Foundation were not audited in accordance with *Government Auditing Standards*.

Internal Control over Financial Reporting

Management of the University is responsible for establishing and maintaining effective internal control over financial reporting. In planning and performing our audit, we considered the University's internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the University's internal control over financial reporting.

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 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.

Our consideration of internal control over financial reporting 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 financial reporting that might be deficiencies, significant deficiencies or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses, as defined previously.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the University's financial statements are free of 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*.

This report is intended solely for the information and use of management, the audit committee, others within the entity, federal awarding agencies, and pass-through entities and is not intended to be and should not be used by anyone other than those specified parties.

Greenville, South Carolina
October 2, 2012

Elliott Davis, LLC



**INDEPENDENT AUDITOR'S REPORT ON COMPLIANCE
WITH REQUIREMENTS THAT COULD HAVE A DIRECT
AND MATERIAL EFFECT ON EACH MAJOR PROGRAM
AND ON INTERNAL CONTROL OVER COMPLIANCE IN ACCORDANCE
WITH OMB CIRCULAR A-133 AND ON THE SCHEDULE OF
EXPENDITURES OF FEDERAL AWARDS**

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

Compliance

We have audited the compliance of Clemson University (the University) with the types of compliance requirements described in the U.S. Office of Management and Budget (OMB) *Circular A-133 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, 2012. 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*. Compliance with the requirements of laws, regulations, contracts, and grants applicable to each of its major federal programs is the responsibility of the University's management. Our responsibility is to express an opinion on the University's compliance based on our audit.

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. Our audit does not provide a legal determination of the University's compliance with those requirements.

In our opinion, the University complied, in all material respects, with the 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, 2012.

Internal Control over Compliance

Management of the University is responsible for establishing and maintaining effective internal control over compliance with the requirements of laws, regulations, contracts, and grants applicable to federal programs. In planning and performing our audit, we considered the University's internal control over compliance with the requirements that could have a direct and material effect on a major federal program to determine our auditing procedures for the purpose of expressing our opinion on compliance 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.

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 deficiencies, significant deficiencies, or material weaknesses. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above.

Schedule of Expenditures of Federal Awards

We have audited the financial statements of the business-type activities and discretely presented components of the University, a department of the State of South Carolina, as of and for the year ended June 30, 2012, and have issued our report thereon dated October 2, 2012, which contained an unqualified opinion on those financial statements. Our audit was conducted for the purpose of forming our opinions on the financial statements that collectively comprise the University's financial statements. Our report was modified to include a reference to other auditors. 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 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 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 financial statements or to the 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 expenditures of federal awards is fairly stated in all material respects in relation to the financial statements as a whole.

This report is intended solely for the information and use of management, the audit committee, others within the entity, federal awarding agencies, and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Greenville, South Carolina
October 2, 2012

Elliott Davis, LLC

CLEMSON UNIVERSITY
SCHEDULE OF FINDINGS AND QUESTIONED COSTS
FOR THE YEAR ENDED JUNE 30, 2012

I. Summary of auditor's results

- A. An unqualified opinion was issued on the financial statements of Clemson University.
- B. No material weaknesses relating to the audit of the financial statements are reported in the Schedule of Findings and Questioned Costs.
- C. No significant deficiencies relating to the audit of the financial statements are reported in the Schedule of Findings and Questioned Costs.
- D. No instances of noncompliance material to the financial statements of Clemson University were disclosed during the audit.
- E. No material weaknesses relating to the audit of the major federal award programs are reported in the Schedule of Findings and Questioned Costs.
- F. No significant deficiencies relating to the audit of the major federal award programs are reported in the Schedule of Findings and Questioned Costs.
- G. The auditor's report on compliance for the major federal award programs for Clemson University expresses an unqualified opinion.
- H. No audit findings were disclosed that are required to be reported in accordance with Section 510(a) of OMB Circular A-133.

I. Major federal programs for Clemson University for the fiscal year ended June 30, 2012 are:

<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; 43.RD; 45.RD; 47.RD; 59.RD; 64.RD; 66.RD; 77.RD; 81.RD; 84.RD; 90.RD; 93.RD; 98.RD; 99.RD	Research and Development Cluster
10.500	Cooperative Extension Service - Smith Lever
81.087	ARRA Recovery Act: Clemson University Wind Turbine Drivetrain Test Facility
84.394	State Fiscal Stabilization Funds Cluster
84.396	ARRA Reading Recovery: Scaling Up What Works

- J. The threshold for distinguishing Types A and B programs for Clemson University was \$3,000,000.
- K. Clemson University was assessed as a low risk auditee.

(Continued)

CLEMSON UNIVERSITY
SCHEDULE OF FINDINGS AND QUESTIONED COSTS
FOR THE YEAR ENDED JUNE 30, 2012

II. Findings related to the audit of the financial statements of Clemson University

None noted

III. Findings and questioned costs related to the audit of federal awards

None noted

CLEMSON UNIVERSITY
SUMMARY SCHEDULE OF PRIOR AUDIT FINDINGS
FOR THE YEAR ENDED JUNE 30, 2012

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 2011-1

Programs: CFDA No. 84.032 - Federal Family Education Loans; CFDA No. 84.063 - Federal Pell Grant Program

Corrective Action

Taken/Current Status: Written procedures for return of Title IV funds have been reviewed and updated to ensure compliance with Title IV regulations. These procedures include an approval by the Registrar and Director of Financial Aid on the number of days in the term to be used for the return of Title IV funds and the use of the R2T4 web based tool provided by the Department of Education for the return of Title IV funds.

Corrective actions were taken before the 2011 fiscal year end closing to review all student withdrawals for the fiscal year. All student accounts with Title IV aid were adjusted using the R2T4 web based tool.