

**Clemson University
Clemson, South Carolina**

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

For the year ended June 30, 2024



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Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
RESEARCH AND DEVELOPMENT CLUSTER				
Department of Agriculture				
22-7415-1510-CA	10.028	AP22WSNWRC00C026	\$ -	\$ 18,059
A Controlled Environment Agriculture Platform for Cultivation of Salt-Tolerant Crops with Integrated Saline Water Irrigation and Salinity Management	10.310	2023-69012-39038	256,761	1,014,923
A Multi-State Effort to Contain and Manage the Invasive Guava Root Knot Nematode (GRKN) in Vegetable Crops	10.309	2019-51181-30018	443,434	613,430
Acquisition for Goods and Services	10.001	58-6080-3-011	-	29,910
Acquisition of Goods and Services	10.001	58-6082-3-008	-	3,634
Acquisition of Goods and Services	10.001	58-6082-2-008	-	(1,266)
Acquisition of Goods and Services	10.001	58-6082-3-009	-	28,400
Acquisition of Goods and Services	10.001	58-6082-4-015	-	7,178
Acquisition of Goods and Services	10.001	58-6082-4-011	-	9,315
Acquisition of Goods and Services	10.001	58-6082-3-014	-	10,193
Acquisition of Goods and Services	10.001	58-6080-4-011	-	9,772
Acquisition of Goods and Services	10.001	58-6082-4-014	-	3,580
Acquisition of Goods and Services	10.001	58-6082-2-013	-	(525)
Acquisition of Goods and Services	10.001	58-6082-4-006	-	16,922
Acquisition of Goods and Services	10.001	58-6082-4-005	-	6,544
Acquisition of Goods and Services	10.001	58-6082-4-018	-	4,861
Acquisition of Goods and Services	10.001	58-6082-3-015	-	16,922
Acquisition of Goods and Services	10.001	58-6082-3-010	-	88,704
Acquisition of Goods and Services	10.001	58-6080-4-006	-	15,569
Acquisition of Goods and Services	10.001	58-6080-2-005	-	(1,573)
Acquisition of Goods and Services	10.001	58-6082-2-014	-	2,844
Acquisition of Goods and Services	10.001	58-6082-4-008	-	19,669
Acquisition of Goods and Services	10.001	58-6080-3-006	-	45,477
Acquisition of Goods and Services	10.001	58-6082-3-005	-	9,976
Acquisition of Goods and Services	10.001	58-6082-4-020	-	2,335
Acquisition of Goods and Services (58-6082-4-016)	10.001	58-6082-4-016	-	6,650
Adsorption of PFAS by Biochars and Subsequent Regeneration with Microwave Treatment	10.001	58-2020-4-003	-	35,031
Advanced Methods to Sustain Biological Controls for Integrated Turfgrass Disease Management in the Urban Landscape	10.329	2023-70006-40655	34,472	77,329
Advancing Cotton Fiber Quality through High-Throughput Phenotyping Microscopy and Genetic Analysis	10.310	2024-67014-41947	-	18,441
Advancing the Ecology of Blackberry Virus Diseases in South Carolina	10.310	2023-67014-39905	-	83,036
ALB Modeling Project	10.025	AP23PPQS&T00C022	-	44,896
An Open-Source, Reproducible Irrigation Scheduling Software to Optimize Water Use for Cotton Crops	10.310	2023-67022-40555	-	5,660
Animal Health	10.207	NI23AHDRXXXXG039	-	16,454
Asian Longhorned Beetle Research Support	10.025	AP23PPQS&T00C004	30,959	139,520
Asian Longhorned Beetle Research Support	10.025	AP22PPQS&T00C002	4,940	5,434
Asian Longhorned Beetle Research Support	10.025	AP24PPQS&T00C005	-	79,247
Assessing the Sse of Environmental DNA as an Early Detection Method for Aquatic Invasive Species	10.714	24-JV-11330101- 005	-	31,919
Assessment of an Epizootic Ulcerative Syndrome Outbreak During Forest Harvest Operations, Santee Experimental Forest, South Carolina	10.699	22-CS-11330180-070	12,181	44,703
Bipartisan Infrastructure Law Invasive Species Eradication	10.680	24-CA-11083150-440	-	10,592
Breeding Biofortified Pulse and Cereal Crops for U.S. Organic Cropping Systems	10.307	2018-51300-28431	-	31,843
Bridging the Gap: Training Next Generation Scientists Using Animal Health Technologies	10.310	FAR0036981	-	11,394
Building Ecosystem Resiliency Through Innovative Silvopasture Systems on South Carolina Farms	10.912	NR233A750011G005	-	101,581
Building Partnerships for Climate-Smart Commodities Commodities in South Carolina	10.937	NR233A750004G049	561,603	8,232,870

The accompanying notes are an integral part of this schedule.

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Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
CAP: Fast Selection, Assessment, and Delivery of HLB-Resistant/Tolerant Citrus Variants as New Scion and Rootstock Cultivars	10.309	2023-70029-41309	19,039	44,711
Carolina Cotton can Conserve Soil with Cover Crops	10.912	NR213A750013G007	-	117,972
Characterization of Water Quality and Quantity in Greenhouse and Nursery Waters in the Piedmont Ecoregion of the USA	10.001	58-5082-0-012	-	10,244
Clemson Bipartisan Infrastructure Law Early Detection Rapid Response	10.680	24-DG-11083150-107	-	20,910
Clemson Fire Tigers	10.000	20-PA-11081200-276	-	(235)
Clemson-South Carolina State CYFAR	10.500	2018-41520-28750	71,471	165,282
Conduct Five On-Farm Broiler Litter to Demonstrate the Importance of Broiler Litter to Improve Various Soil Health Parameters Including Soil-Test Biological Activity and Promoting the Appropriate Use	10.912	NR224639XXXXC011	-	13,290
Conduct Five On-Farm Broiler Litter to Demonstrate the Importance of Broiler Litter to Improve Various Soil Health Parameters Including Soil-Test Biological Activity and Promoting the Appropriate Use	10.912	NR224639XXXXC012	-	12,543
Consortium of Appalachian Fire Managers and Scientists Crop Protection and Pest Management Extension Implementation Program for South Carolina	10.707	23-JV-11330160-019	-	71,608
CucCAP 2: Harnessing Genomic Resources for Disease Resistance and Management in Cucurbit Crops - Bringing the Tools to the Field	10.329	2021-70006-35508	-	162,844
Cultivar Development: Combining Genomics-Enabled Breeding with Coordinated Regional Testing to Accelerate Wheat Genotype to Market	10.001	58-6080-3-016	-	32,826
Detection and Management of Phytophthora species in Nurseries and Greenhouses	10.310	2021-67014-33941	-	39,344
Detecting Fusarium Head Blight (FHB) Resistant Wheat for the Coastal Plain	10.001	58-2072-0-058	-	43,365
Developing Soybean Genotypes with High Yield Grown Under Reduced Fertilizer Inputs	10.001	59-0206-2-097	-	103,939
Developing Wheat Genotypes with Reduced Immunogenicity and Enhanced Lysine Content	10.001	59-6070-4-018	-	3,579
Development and Implementation of Biological Control Tactics for Key Vegetable Insect Pests in the Southeastern U.S.	10.310	2023-67014-39615	33,492	71,965
Development and Implementation of Sanitation Training Tools for Small Growers	10.307	2018-51300-28425	53,955	62,490
Development of a Novel Sensor for Rapid Onsite Detection of Microcystin in Rural Livestock Ponds: A Seed Grant to Support Sensor Development	10.328	2023-70020-40569	37,936	90,115
Development of a Regional Southern Pine Beetle Website	10.310	2023-67022-40623	40,964	48,703
Development of Genetic Resources for Host-Plant Resistance to Leaf Blight Pseudomonads in Turnip Greens and Spinach	10.680	19-DG11083150-038	-	4,222
Development of Site-Specific, Combined Water and Nutrient Management Technologies for Overhead Irrigation	10.310	2020-67014-30868	-	91,089
Diversifying Organic Inputs to Improve Soils Supporting Organic Vegetable in Southeastern USA	10.310	2021-67022-34930	-	83,164
DSFAS: Big Data-enabled Real-time Learning and Decision Making for Field-based High Throughput Plant Phenotyping	10.303	2020-51106-32363	21,305	75,912
Ecology and Integrated Management of Ambrosia Beetles in Eastern U.S. Orchard and Ornamental Tree Crops-Clemson	10.310	2020-67021-40004	47,238	60,363
	10.001	59-5082-1-005	-	17,774

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
Effects of Field Management on Bats of Big South Fork National River and Recreation Area	10.664	24-JV-11330170-009	-	17,609
Effects of Glyphosate on Decomposer Communities in Invaded Forests	10.680	23-DG-11083150-107	7,063	8,899
Effects of Prescribed Fire on Ips Bark Beetles	10.680	19-DG11083150-039	-	3,073
El Yunke National Forest: Research to Support Regional Community-Based Tourism and Resilience	10.699	22-PA-11081600-116	-	82,866
Elucidating the Processes that Regulate the Mobilization of Heavy Metals from Soil-Applied Phosphate Rocks and Developing Rhizobiome-Based Strategies to Sequester These Contaminants	10.310	2023-67020-39730	-	117,433
Elucidating the Regulators that Impart the Specificity and Productivity of Plant-Arbuscular Mycorrhizal Symbiosis	10.310	2022-67014-37145	-	181,550
Enable the Use of Mass Timber Products for Non-Residential Buildings in High Velocity Hurricane Zone	10.600	19-DG11083150-015	-	7,819
Enriching the Professional Preparation of Food Science Students	10.310	2020-67038-30654	-	66,568
Establishing the Infrastructure to Develop Prediction Tools for Diseases & Affecting Cotton to Better Inform Mgmt. Decisions (Clemson)	10.001	58-0206-0-195	-	19,264
Establishment of a Southeastern U.S. Regional Hub in Support of the North American Bat Monitoring Program	10.707	22-JV-11330170-021	-	93,995
Evaluating Watermelon Germplasm for Resistance to Reniform Nematode	10.001	58-6080-4-005	-	14,271
Evaluation of Watermelon and Cucumber Genotypes for Tolerance to Biotic and Abiotic Stress	10.001	58-6080-3-013	-	62,512
Evaluation of Watermelon and Cucumber Genotypes for Tolerance to Biotic and Abiotic Stress (Phase 2)	10.001	58-6080-3-014	-	15,408
Expanding the Limits of Cut Flower Postharvest Longevity	10.001	58-8062-3-017	-	39,267
Exploring African American Wilderness Heritage in the Southeast United States	10.699	23-CS-11221639-113	-	19,931
Exploring African American Wilderness Heritage in the Southeast United States	10.707	22-JV-11221639-146	-	21,530
Exploring Alternative Uses for Muscid Antimicrobial Effectors	10.001	58-3020-1-017	-	18,132
Exploring Mechanisms of Chemical Resistance in Xanthomonas Arboricola Pv. Pruni and Strategies to Mitigate Resistance and Improve Disease Control	10.310	2021-67013-33574	32,196	83,113
FACT-CIN: Expanded Food and Nutrition Education Program - Web Based Nutrition Education and Evaluation Reporting System (WebNEERS)	10.310	2020-67017-32395	20,471	65,191
FLORECE!: Future Leaders Obtaining Research & Extension Career Experiences	10.310	2021-68018-34636	-	85,922
FY22 NCPN Clemson Univ./Cieniewicz- The	10.025	AP22PPQS&T00C076	-	68,862
FY23 D1 SC ADT	10.025	AP23VSSPRS00C066	-	77,622
FY23 NCPN Clemson/Cieniewicz Fruit Tree	10.025	AP23PPQS&T00C010	-	214,034
FY24 D1 SC UMB	10.025	AP24VSSPRS00C100	-	1,380
Growing Microalgae in Livestock Wastewater - Benefits in Nutrient Recycle, Antibiotic Removal, and Potential Biofuel Production	10.310	2022-67019-37177	-	130,649
Harvesting Options for Restoration Treatments	10.707	19-JV-11330132-087	-	14,534
Hatch & Hatch Multistate	10.203	NI22HFPXXXXG015	-	45,229
Hatch & Hatch Multistate	10.203	NI23HFPXXXXG022	-	3,331,220
Hatch & Hatch Multistate	10.203	NI23HMFPPXXXXG003	-	945,123
Hatch & Hatch Multistate	10.203	NI24HMFPPXXXXG041	-	46,723
Herbicide Efficacy for Management of Invasive Callery Pear	10.699	20-CS-11330160-086	-	9,068
High Resolution Mass Spectrometry for Target, Suspect, and Nontarget Screening of Micropollutants in Agroecosystems	10.519	2022-70410-38474	-	592

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
iCORP: Increasing Coastal Organic Rice Production in South Carolina Using Salt Tolerant Cultivars	10.303	2021-51106-35494	5,784	135,311
Identification of Molecular Markers Associated with Root Traits that Improve Performance in Cotton	10.001	58-6066-1-033	-	82,105
Identifying Effective Farming Practices to Reduce Risks of Per- and Polyfluoroalkyl Substances (Pfas) in Food Crop Productions	10.310	2021-67019-33682	30,784	90,971
Immersive Professional Development Experiences for Agriscience Teachers to Explore the Floriculture Industry	10.310	2023-67037-39955	16,529	53,770
Impact of Litter Training Strategies on Egg-Laying, Piling, and Welfare of Laying Hens in Aviaries	10.310	2022-67015-36310	98,137	266,189
Implementing a Regional Scale Southern Pine Beetle (SPB) Model for the Southeastern United States	10.652	22-CS-11330180-066	-	29,406
Improving Oil Content for Upland Cotton Growers: New Molecular Tools and Germplasm	10.310	2023-69008-39861	-	114,094
Improving Organic Vegetable Profitability by Identifying Cost-Effective Technologies that Optimize Production and Whole-Farm Planning in the Southeast: A Planning Grant	10.307	2023-51300-40949	-	26,340
Improving Profitability of Organic Sweetpotato through Pest Resistant Clones and Enhanced Anaerobic Soil Disinfestation	10.303	2022-51106-37922	-	195,142
Improving Soybean's Efficiency for Heat Tolerance with an Integrated Metabolic and Genetic Approach	10.310	2022-67013-36173	-	92,867
Improving the Nutritional Value of Chickpeas	10.001	58-2090-8-084	-	18,471
Increase Farmer Knowledge About Successfully Integrating Cereal Rye and Annual Rye as a CC Into a Cropping Rotation in South Carolina	10.912	NR234639XXXXG002	-	20,178
Increasing the Concentration of Sulfur Containing Amino Acids (SCAA) in Pulse Crops	10.001	58-2090-2-032	-	67,944
Integrating a Proven Screening and Breeding Strategy with Functional Biology to Deliver FOV4 Resistance to Upland Cotton Growers	10.310	2022-67014-36980	78,009	94,577
Integrating Metabolome and Phytohormone Analyses to Investigate Postharvest Physiology of Potato	10.001	58-3060-2-025	-	18,062
Interactive Effects of Temperature and Photoperiod on Flower Initiation and Development	10.001	58-5082-8-013	-	22,874
Invasive Plants in Southern Forests: Impact on Fuels and Implication to Fire Behavior	10.707	21-JV-11330145-066	-	41,678
Kale Alternatives Leading to Enhanced Economics (KALE): Improving Profitability and Evaluating Marketing Decisions of Organic Kale Farmers Facing Alternaria Leaf Spot in the Southeastern U.S.	10.303	2021-51106-35495	10,208	163,066
Leveraging Concentrated Organic Byproduct Materials for Higher Nutrient Use Efficiency and Anaerobic Soil Disinfestation in Organic Vegetable Production	10.303	2023-51106-40850	-	75,117
Linking Dynamic Soil Erodibility to Soil Loss in the Agricultural Landscape	10.001	58-6060-0-008	-	19,757
Longleaf Pine Restoration for Southern Forest Sustainability and Resilience: Towards a Process-Based Understanding of Ecosystem Services	10.652	22-DG-11330180-025	-	58,421
Maintain the RUSLE2 Interface and to Develop Additional RUSLE2 Technology Programming	10.902	NR233A750008C002	36,261	49,943
Management of Salinity Externalities in an Irrigated Agricultural Region	10.310	2021-67024-34480	154,866	170,847
McIntire Stennis	10.202	NI22MSCFRXXXG044	-	5,335
McIntire Stennis	10.202	NI23MSCFRXXXG009	-	962,832
MicroRNA-Mediated Transgene Containment in Important Perennial Grasses	10.219	2021-33522-35342	-	184,405
Mitigation Strategies for Ergot Alkaloid-Induced Vasoconstriction and Intrauterine Growth Restricted Muscle Development	10.310	2020-67016-30816	-	108,626

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
Modeling and Valuing the Distributional Impacts of Fuel Treatments	10.000	21-JV-11272131-037	-	2,647
Modernizing the Floriculture Supply Chain: Introducing Novel Postharvest Techniques for Improving Unrooted Cutting	10.001	58-5082-3-025	-	45,378
Monitoring Pasture Quality and Quantity Using Field Robotics	10.310	2020-67021-31960	-	95,357
Multiscale Modeling and Machine Learning Guided Characterization and Design of Chitosan-Based Nanocomposites for Active Food Packaging	10.310	2022-67022-36423	-	50,296
National Association of Plant Breeders (NAPB) Meeting 2023 - "Southern Hospitality Through Food and Agriculture"	10.310	2023-67013-39484	-	20,812
Natural Language Processing to Understand Public Comments in USFS Planning	10.699	22-CS-11242309-071	-	27,290
Nematode Early Warning System (NEWS) Facilitates Real-Time Remote Monitoring of Soil Pathogens in Agricultural Fields	10.001	59-6080-3-001	-	3,538
On-Farm Demonstration and Evaluation of Cloud-Based Soil Moisture Monitoring Technologies for Irrigation Scheduling to Enhance Farm Profitability and Environmental Quality	10.912	NR203A750013G010	-	47,880
Partnership: Nanotech-Enabled Antimicrobial Packaging Materials and Technology for Food Preservation and Safety	10.310	2023-67018-40681	-	7,647
Phytochemical-Mediated Stress Hormesis and Priming as a Mechanism of Resilience in Weeds and Negating These Stress Adaptations	10.310	2021-67014-33636	-	71,875
Produce Prescription and Nutritional Education to Improve Health Outcomes of Patients with Type-2 Diabetes Living in a Rural and Medically Underserved County in South Carolina	10.331	2022-70424-38554	-	197,428
Production, Financial, and Legal Risk Management for Aquaculture Producers in Florida and South Carolina	10.460	RMA23CPT0013388	-	1,431
Promoting Adoption of Sustainable Nutrient Management Strategies Thru 24 On-Farm Trails in SC for Improved Sustainable Cropping. CESU Umbrella Agreement 68-3A75-18-501	10.912	NR214639xxxxC020	-	115,057
Promoting Climate-Smart and Resilient Forestry in the Southeastern United States	10.310	2023-67022-39531	21,663	116,593
Promoting Cyber-Learning Through Technology-Enabled Modules within FANH Education	10.217	2020-70003-32310	-	54,472
Quantifying the Cover Crops Nitrogen and Potassium Credit to 3-yr Cotton-Peanut Rotation	10.902	NR184639XXXXG009	-	20,008
Remote Sensing Applications for Agricultural Drought Monitoring	10.310	2023-67020-40564	-	75,002
Restore Native Ecosystems to Control Chinese Tallow Invasion in Hurricane-Impacted Slash Pine Plantations in MCRD Parris Island	10.707	22-JV-11242311-108	-	45,698
Roles of Microplastics in Reclaimed Water - Altering Persistence and Bioavailability of Antimicrobials in Agricultural Soils	10.310	2020-67019-31022	21,276	82,880
RUSLE2 Execution Parameters Database Updates	10.001	58-6060-3-010	-	74,987
SC 2024 NAHLN Infrastructure	10.025	AP24VSD&B000C022	-	11,100
SC FY22 Forest Health Education 5.0542.0	10.025	AP22PPQFO000C272	-	5,117
SC FY23 CAPS Survey	10.025	AP23PPQFO000C451	-	22,741
SC FY23 Forest Health Education	10.025	AP23PPQFO000C393	-	66,583
Seed Grant on: Genomics of Flavor and Odor of Pulse Crops for Increased Consumer Acceptance	10.310	2024-67014-42580	-	5,171
Soil Health Demonstration at Pee Dee REC	10.912	NR184639XXXXG012	-	16,976
Solutions to the Armillaria Root Rot Threat Affecting the U.S. Stone Fruit Industry	10.309	2020-51181-32142	603,110	1,364,010

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
Southern Heritage Crops: Developing Economic Potential in a Geographically and Culturally Unique Market Niche for Small and Medium Sized Farms.	10.310	2020-68006-31266	-	71,700
Storage, Reactivity, and Bioavailability of Mercury in Manage Forests - Balancing Mercury Toxicity and Wildfire Risks Through Effective Fuel Reduction	10.310	2018-67019-27795	16,463	16,476
Studies of Occupations, Culture, and Innovations Toward Agricultural Literacy (SOCIAL): Professional Development for Integrating Agriculture and History Curricula	10.310	2021-67037-34301	7,054	27,237
Sustainable, High-Quality Organic Pulse Proteins: Organic Breeding Pipeline for Alternative Pulse-Based Proteins	10.307	2021-51300-34895	-	409,437
Systems Approach to Impart Stress Resilience: Enhancing the Drought-Resilience of Crops Through Cross-Inoculation of Beneficial Rhizobiome and Cover Cropping	10.000	2022-67014-37053	-	83,738
The Application of MicroRNA to Impact Muscle Growth in Rainbow Trout with Climate Change Implications	10.310	2023-67011-40347	-	44,476
To Expand the Delivery of Conservation Assistance, Emphasis on Climate-Smart Agriculture, to Historically Underserved Farmers and Ranchers Including Outreach to Minority Students	10.902	NR223A750003C031	-	366,604
To Partially Develop Science Components and Code Features of the Web-Based Sser Interface for RUSLE2	10.902	NR233A750008C001	53,627	135,863
To Root or Not to Root? An Integrated Approach to Understanding Adventitious Root Induction in American Chestnut Cuttings	10.310	2023-67014-39539	-	70,672
Training Under-represented Minority Scholars in Sustainable Management of Plant Diseases	10.210	2021-38420-34947	-	80,648
Transgene Containment and Removal in Important Important Perennial Grasses	10.219	2019-33522-30102	-	(168)
Treatment of Wastewater with Nanobubbles for Safe Reuse	10.001	58-2020-2-020	-	11,728
Truck Bed Tool Kit for Detection of Non-Native Plant Species	10.680	22-DG-11083150-305	75,226	75,226
Urban Forestry's Return on Investment: Accelerating Out Understanding of the Nature-Health Care Cost Relationship	10.675	20-DG-11132544-057	-	6,513
White-Nose Syndrome Survival Strategies of Tricolored Bats (Perimyotis Subflavus) During Fall, Winter, and Spring	10.707	20-JV-11330170-109	-	7,914
Pass-through programs from:				
Brigham Young University				
Engineering for Agricultural Production Systems PARTNERSHIP: The Influence of Leaf Sheath on Greensnap Grain Failure	10.310	22-0581 / PO# PR170670	-	15
Colorado State Univ.				
Inferring the Supply of Greenhouse Gas Abatement from U.S. Commodity Producers in The Corn Belt Using Observed Practice Choices: Implications for Carbon Offset Programs	10.310	G-03421-01	-	1,654
Cornell Univ.				
Integrated Weed Management in Hemp: A Multistate Effort to Evaluate Practices and Develop Recommendations	10.329	139252-21126	-	33,452
Ducks Unlimited, Inc.				
CRP Soil Carbon Assessment-Wetlands	10.069	US-RS-55-1	-	117,492
eXtension Foundation				
EXCITE 3 Design Phase	10.229	EXC3-2022-2265	-	(3,332)
SC Clemson University Adult Vaccine Promotion Grant	10.229	EXC3-2023-2416	-	61,083

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
Growers for Grace PBC				
Evaluation of Agricultural Carbon Waste Streams to Facilitate Anaerobic Soil Disinfestation in Watermelon Production	10.170	G4GS-21SCBPSC1010-CU	-	7,076
Iowa State Univ.				
NIFA AG2PI Collaborative: Continuing to Seed the Future of Agricultural Genome to Phenome Research	10.332	026418C	112,362	215,506
Louisiana State Univ.				
Modernizing Fertilizer Recommendations for Climate-Smart Crop Production in the Southern Region: The Fertilizer Recommendation Support Tool (FRST)	10.912	PO-0000263043	-	529
Michigan State Univ.				
CucCAP 2: Harnessing Genomic Resources for Disease Resistance and Management in Cucurbit Crops - Bringing the Tools to the Field	10.309	RC111377B	-	108,663
NC State Univ.				
Farm Bill. Development of A Decision Support Tool to Optimize Fungicide Use Against Downy Mildew Pathogens	10.329	2022-2708-01	-	7,053
Identifying Overwintering and Landscape Features Associated with Stink Bug Risk and Yield Loss in Corn	10.329	2020-2993-01	-	11,385
North Carolina Central University				
Control of Persistent Foodborne Pathogens Using Visible Light-Activated Antimicrobial Carbon Nanomaterials	10.310	A19-0041-S002 / P0108382	-	6,923
North Carolina State University				
Enhancing the Sustainability of United States Cropping Systems through Cover Crops and an Innovative Information and Technology Network	10.310	2019-1507-10	-	40,529
Impact of Blended and Structured Refuge Management Tactics on Helicoverpa Zea Mating Behavior and Resistance Risk Implications for Bt Crops	10.219	PAM-P23-002848-SA01	-	5,821
Rodale Institute				
Quantifying the Potential to Reduce Greenhouse Gas Emissions and Increase Carbon Sequestration Growing and Marketing Climate-Smart Commodities in the Southern Piedmont	10.937	RI-CS04172023-160-Clemson	-	40,471
SC Dept. of Agriculture				
Air or Soil Temperature: Understanding the Cues for Dormancy Transition in Peach	10.170	AM22SCBPSC1167-00	-	30,021
Assessing Tomato and Watermelon Cultivar Susceptibility to Spider Mites and Potential for New IPM Strategies	10.170	AM22SCBPSC1167-00	-	3,935
Chickpea (Cicer arietinum L.) Breeding for Emerging High Protein Plant-Based Hummus Production in SC	10.170	P1601SCBGP24-13	-	8,339
Cultivating Heat and Humidity Tolerant Beans in South Carolina	10.170	AM200100XXXXG073	-	1,868
Determining Prevalence of Nematodes Damaging Strawberries in South Carolina	10.170	21SCBPSC1010-00	-	3,437
Development of a New Diagnostic Tool to Identify the Bacterial Disease Complex on Leafy Brassica Greens	10.170	AM200100XXXXG073	-	271
Development of Novel Preharvest Spray Program to Improve Management of Bacterial Spot on Peach	10.170	AM22SCBPSC1167-00	-	6,019

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
Effective Fungicides to Manage Phomopsis Fruit Rot on Eggplant in South Carolina	10.170	P1601SCBGP24-12	-	181
Establishing Clonal Propagation Systems for Golden Camellia, a Valuable Yellow-Flowering Selection	10.170	AM22SCBPSC1167-00	-	6,096
Evaluating and Promoting Wine Grape Varieties Suitable for South Carolina	10.170	P1601SCBGP24-01	-	15,464
Evaluation of Low-Input Pecan Cultivars in the Coastal Plain of South Carolina	10.170	P1601SCBGP24-07	-	5,889
Exploring Novel Armillaria Root Rot Management Strategies in Peach	10.170	21SCBPSC1010-00	-	20,922
Improving Detection of Xylella Fastidiosa to Protect Diversified Fruit Farms in SC	10.170	P1601SCBGP24-02	-	8,912
Investigating the Role of Fungicides in Tank Mix on Managing Bacterial Spot of Peach	10.170	P1601SCBGP24-05	-	3,285
New Winter Legume Cash Crop: Developing Improved Pea Cultivars for SC Organic Cropping Systems	10.170	21SCBPSC1010-00	-	31,239
Optimization of Nutritional Programs for Stone Fruit in the Southeastern U.S.	10.170	P1601SCMP22-1	96,471	166,839
Stakeholder Needs Assessment and Evaluation Trails to Initiate Quality-focused Vegetable Breeding Programs for South Carolina	10.170	AM22SCBPSC1167-00	-	39,661
Substantial Reduction of Captan Pesticide in Peach Spray	10.170	P1601SCBGP24-03	-	17,332
Systems Approach to Manage the Fusarium Wilt in Cucurbits	10.170	P1601SCBGP-06	-	5,547
Taking Disease Detection to the Sky: Evaluating Satellite Imagery for Virus Disease Detection in Peach Trees	10.170	21SCBPSC1010-00	-	24,446
The Continued Development and Utilization of the South Carolina Agriwellness Program	10.525	P1601FRSAN22-1	-	122,477
Which Pythium Species Cause Cottony Leak on Pickling Cucumbers in South Carolina	10.170	AM22SCBPSC1167-00	-	1,659
SC Forestry Commission				
Assessing Asian Long-horned Beetle's Impact on Managed and Natural Southern Forest Ecosystems	10.680	21-DG-11083145-008	-	1,369
Enhanced Pear-Spectives: Proactive Sky-Scouting to Detect Areas at High-Risk from Spread of Invasive Callery Pear	10.664	21-DG-1108345-001	-	66,162
Tennessee State Univ.				
Enhancing the Integration of Insectary Plants for Managing Arthropod Pests in Southern US Vegetable Production	10.329	332.77-23.3837	-	57,140
Flatheaded Borer Management in Specialty Tree Crops	10.309	332.77-21.2177 / PO142885	-	73,663
Texas A&M Univ.				
Climate-Smart Organic Sorghum Partnership for Grain and Silage Production	10.307	M2304949	-	23,203
Research and Extension to Address Herbicide Resistance Epidemic in Annual Bluegrass in Managed Turf Systems	10.309	M1900021	-	6,354
The Center for Produce Safety				
Survival of Listeria Monocytogenes and Salmonella spp. on Surfaces Found in the Dry Packinghouse Environment and Effectiveness of Dry Cleaning Processes on Pathogen Reduction	10.170	2022CPS03	-	(434)
Verification and Validation of Environmental Monitoring Programs for Biofilm Control in the Packing House	10.170	2020CPS02	-	(103)

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
The Nature Conservancy				
Reptile Surveys of The Talladega Mountain Longleaf Pine Conservation Local Implementation Team (LIT) Boundary, Northwest Georgia, 2022-2023	10.664	GABU 09272022	-	17,539
The Ohio State Univ.				
Environmental, Human, and Animal Health Risks from the Dissemination of Carbapenem-Resistant Enterobacteriaceae into Agricultural Watersheds	10.310	SPC-1000007122 GR129592	-	62,857
Univ of Maryland Eastern Shore				
Smart-Detection and Preventative Controls: Emergent Technologies for Microbial Food Safety in Soilless Leafy Greens Systems	10.216	FHNIFA5208600MCLAMORECU / PO 132276	-	19,915
Univ. of Arkansas				
Developing a Basis for Control Strategies Against Histomoniasis in Poultry	10.001	AWD-102727-01	-	150,632
Development and Implementation of Innovative Food Food Safety Training Tools for the Production and Distribution of Microgreens	10.328	91172-01	-	7,304
COVID 19 - Environmental Control of SARS-CoV-2 within Food Service Establishments	10.310	AWD-000210-02	-	63,516
Univ. of Delaware				
Cellulose Nanocrystals as Enablers in Creating 100% Biobased and Non-Isocyanate Polyurethane Foams at Commercial	10.674	UDR0000458	-	23,202
Univ. of Florida				
Dispersal and Reproductive Potential of Helicoverpa Zea in Bt and non-Bt Crops and Implications for Insecticide Resistance Management Regulations	10.219	SUB00002839	-	8,181
IR-4 (Biopest) Integrated Solutions Trials	10.200	PO 2301045568	-	175
IR-4 Performance Funding for 2023	10.200	2301127675	-	8,889
Performance of Cyantraniliprole and Isocycloseram on Greenhouse-Grown Strawberry Against Thrips	10.200	PO 2301128585 / P11679.23-SCP01	-	8,145
Plant Safety, Horticultural Benefits, and Disease Efficacy of Essential Oils for Use in Organically Grown Fruit Crops: From the Farm to the Consumer	10.307	SUB00002400	-	24,584
SmartPath: Grower-Directed Convergence of Nanotechnology and Smart Decision Analytics for Irrigation Water Quality Management Related to Oathogens	10.310	SUB00002832	-	92,853
SweetCAP: Integrated Technologies to Improve Sweet Corn Breeding, Production and Marketability	10.309	SUB00003558	-	32,208
Translating a Discovery into Improving Food Safety: A Novel Poultry Salmonella Vaccine and Diagnostic Methodology to Control Foodborne Salmonellosis	10.310	SUB00002531	-	16,105
Univ. of Georgia				
Developing Sustainable and Profitable Tools for Producing Tomato in Fields Infested with Soilborne Pathogens, Nematodes, and Weeds	10.303	SUB00002138	-	3,054
Development of Sustainable Strategies for Managing Bacterial Diseases and Improving Tree Health in the Peach Production System	10.215	SUB00002851	-	123,904
Documenting Challenges, Identifying Solutions, and Developing Decision Support Tools for Small and Medium-Sized Forest Businesses	10.310	SUB00002538	-	25,288

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Agriculture, continued				
Optimizing the Cost-Effectiveness of Lighting in Controlled Environment Agriculture SAM: Sustainable Anthracnose Management for Watermelon and Cucumber Growers in the Eastern U.S. (SCRI)	10.309	SUB00003062	-	92,580
Sustainable Agriculture Research and Education (SARE) 2022	10.309	SUB00003303	-	15,819
Sustainable Agriculture Research and Education (SARE) 2022	10.215	SUB00003268	-	31,550
Sustainable Agriculture Research and Education (SARE) 2022	10.215	SUB00003339	-	3,421
Sustainable Agriculture Research and Education (SARE) 2022	10.215	SUB00003321	-	5,613
Sustainable Agriculture Research and Education (SARE) 2023	10.215	SUB00003527	-	3,919
Sustainable Agriculture Research and Education (SARE) Program 2020 - Train the Trainers: Reducing Impacts from Harmful Algal Blooms in Livestock Water Resources in South Carolina	10.215	SUB00002595	-	48,881
Sustainable Agriculture Research and Education (SARE) Program 2021	10.215	SUB00002854	36,775	107,204
Sustainable Agriculture Research and Education (SARE) Program 2021	10.215	SUB00002968	-	9,381
Sustainable Agriculture Research and Education (SARE) Program 2021	10.215	SUB00002852	-	85,875
Sustainable Agriculture Research and Education (SARE) Program 2021	10.215	SUB00003035	-	10,330
The Digital and Data-Driven Demonstration Farm (4-D Farm): Juxtaposition of Climate-Smart and Circular Innovations for Future Farm Economies	10.310	SUB00003126	-	1,108
Univ. of Nebraska - Lincoln				
Characterizing the Interplay Between Sorghum and Fall Armyworm	10.310	25-6228-0342-002	-	29,784
ODF: National Agricultural Producers Data Cooperative: A Strategic Framework for Innovation	10.233	25-6231-0419-006	-	9,784
Univ. of Tennessee				
Climate Smart Grasslands - the Root of Agricultural Carbon Markets	10.937	A24-0412-S002	-	3,518
U.S. Endowment for Forestry & Communities				
Transforming Cellulose Nanocrystals into High- Performance Silicon-Based Products	10.689	20-00082	-	(5)
Virginia Polytechnic Institute				
CAFF-I2GROW: Intelligent and Integrated Greenhouse Gas RemOval with Indoor and Controlled Environment Agriculture	10.310	423715-19244	-	4,190
Peanut Variety and Quality Evaluation - Harnessing Multiscale Data for Trait Prediction to Support Cultivar Release Decisions	10.310	423714-19244	-	59,374
Washington State University				
Enabling Genomics-Assisted Specialty Crop Breeding and Research through Advanced Database Resources	10.309	137740 SPC004735	-	214,852
Total Department of Agriculture			<u>3,204,084</u>	<u>28,364,267</u>

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Commerce				
Developing and Implementing a Biological Condition Gradient for Nearshore Habitats of Puerto Rico	11.420	NA20NOS4200124	-	18,634
Epidemiology and Reproductive Impacts of the Newly Discovered Egg Parasite Carcinonemertes Obrieni on the Caribbean Spiny Lobster Fishery in Florida and the Caribbean	11.427	NA20NMF4270197	45,510	92,576
Novel Time-Dependent Metrology for Precision Spectroscopy of Highly Charged Ions	11.609	70NANB20H087	-	23,846
Nuclear Sensitivity, Metastable Levels and Level Population Dynamics of Highly Charged Ions	11.609	70NANB24H027	-	22,326
Salient, Interactive, Relevant & Confidence in Actions (SIRCA): Using Virtual Reality Storm 1 Surge Simulations to Increase Risk Perception and Prevention Behaviors	11.459	NA21OAR4590217	-	6,918
Understanding Visitor Use and its Impacts on Key Resources at the ACE Basin National Estuarine Research Reserve	11.420	NA20NOS4200125	-	10,267
Wetlands to Combat Drought: Strengthening Drought Preparedness on the Coeur d'Alene Reservation Through Wetland Restoration and Monitoring	11.431	NA22OAR4310234	23,151	106,005
Pass-through programs from:				
National Estuarine Research Reserve Asso Coastal Zone Management Administration Awards	11.419	NMS-002	-	5,247
NC State Univ.				
Innovating a Community-Based Resilience Model on Climate and Health Equity in the Carolinas	11.431	2021-2933-06	-	15,101
SC Dept. of Natural Resources				
Estimation of Abundance for Age 1 and Adult Atlantic Sturgeon in Two Rivers in the Carolina and Chesapeake Distinct Population Segments (DPSS)	11.472	SCDNR FY2020-022 P24019487319	-	9,425
SC Sea Grant Consortium				
A Pilot Study of Plant-mediated Wetland Greenhouse Gas Emissions	11.417	P/M-2D Year 1	-	7,709
Developing a Commercial Seafood Workforce Training Program in South Carolina	11.417	R/WD23-1a	-	12,945
Envisioning the Future of South Carolina's Antebellum Rice Fields: Development of a Decision Support Tool (Year One)	11.417	R/HCE-1	-	2,965
M/PM-2J, Year One (1): South Carolina Space Grant and South Carolina Sea Grant Kathryn Sullivan Earth and Marine Science Fellowship for Tokea Payton: Utilization of Coupled Human and Natural Systems Modeling to Assess Lobster Trap Removal Impacts on...	11.417	M/PM-2J Year One	-	3,328
On Borrowed Time: Age as a Predictor of Phosphorus Mobility in Coastal Stormwater Ponds and Implications for Management	11.417	R/CG-6 Year 1	-	17,742
On Borrowed Time: Age as a Predictor of Phosphorus Mobility in Coastal Stormwater Ponds and Implications for Management (Sahoo)	11.417	R/CG-6 Year 2	-	33,646
P/M-2B: Interaction of Biofilms and Microplastics in Floating Vegetation Root Systems (van den Hurk) - Year 1	11.417	P/M-2B - Year 1	-	13
R/HCE-2: Determining Bacteria and Turbidity Sources to Inform Management and Outreach Across the Edisto Island Watershed, Year One	11.417	R/HCE-2	-	5,654
Urban Stormwater Runoff as a Source of Microplastic and Tire Wear Particles in Coastal Waterways: Transport, Cumulative Impacts to Biota, and Mitigation - Year 2	11.417	R/ER-52 Year 2	1,097	3,031

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Commerce, continued				
Univ. of Delaware				
Advanced Bioprocessing Sensor and Analytical Technologies for Induced Pluripotent Stem Cell Culture Online Monitoring and Automaction	11.619	PC5.2-127 / UDR0000346	-	44,750
NIIMBL Faculty Fellow Sabbatical Program - Sarah Harcum	11.619	UDR0000299 (FFP-501)	-	84,493
Univ. of South Carolina				
From Blue-Gray to Blue-Green: Facilitating the Transition to Non-Plastic, Natural Material Use Within the Coastal Zone Economy PO 2000071511/ USC 10013223	11.417	24-5453 PO 2000071511	-	12,149
Guiding Successful Applications of Floating Treatment Wetlands in Brackish Coastal Ponds	11.417	23-5268 PO#2000068731/10012775	-	20,608
Total Department of Commerce			69,758	559,377
Department of Defense				
(DURIP) A Single-Event Analysis System for Multiply-Charged Ion Interaction Physics	12.800	FA9550-23-1-0419	-	409,310
A Subependymal Giant Cell Astrocytoma (SEGA) Mouse Model	12.420	W81XWH-20-1-0447	-	76,888
A Unified Materials Approach to Mitigating Nonlinearities in HEL Optical Fibers	12.300	N00014-17-1-2546	43,522	43,522
Advanced Visualization, Simulation, and Human Integration through the Digital Design and Simulation Studio (3.22.11) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	132,166
AI Enhanced Real Time UAV-Based Situation Awareness An Integrated Multi-Material Digital Life Cycle Approach for Additive Manufacturing of Ground Vehicle Structures and Components	12.431	C00075835-1	-	68,671
Conic Programming Reformulations and Relaxations for Quadratically Constrained and Quadratic Programs	12.431	W911NF-20-2-0237	-	86,730
Considerations of Ethical and Unethical Behavior on Trust in Human-Autonomy Teaming	12.300	N00014-20-1-2154	20,744	29,454
Convergent Manufacturing of Multi-Materials with Strengthened Metal-Ceramic Interface	12.800	FA9550-20-1-0342	-	262,503
COVIA: Computer Vision based Intelligent Assistant for Mistake Proofing of Complex Maintenance Tasks on Navy Ships	12.431	W911NF-23-2-0058	-	138,666
Cross-Cutting Tradespace Techniques for Ground Vehicle Systems (3.22.10) (VIPR-GS)	12.300	N00174-21-1-0010	-	56,012
Dam Sector Regional Risk Resilience Program (DSR3P) Determining Soldiers' Workload while Operating Ground Vehicles (1.22.8) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	438,470
Development of eDNA as a Tool to Evaluate Anadromous Fish Passage in Response to Environmental Flows	12.630	W912HZ-22-2-0034	67,349	1,254,582
Development of Protocols to Quantify Abiotic Transformation Rates and Mechanisms for Chlorinated Ethenes in Water Supply Aquifers	12.000	W56HZV-21-2-0001	-	514,985
ECO-COATING - Engineering Control of Organic Coatings on Autonomous Navy Gliders (Management)	12.630	W912PM22P0030	-	(61)
Efficient Modeling and Guiding of Experimental Investigations of High-Performance Pistons Leveraging Bayesian and Machine Learning Approaches (3.22.8) (VIPR-GS)	12.000	W912HQ-20-C-0038;CLIN 0001 PO# W74RDV00781560	14,541	102,962
Electro-thermal Management Using In-situ Junction Thermal Estimates for Enhanced Device Reliability	12.910	HR0011-23-2-0008	922,899	1,062,062
Facial Reduction for Semidefinite Relaxations of Combinatorial Problems	12.000	W56HZV-21-2-0001	-	268,290
G-6303 AFCEC PFAS REMChlorMD Modeling	12.300	N00014-22-1-2558	-	97,304
	12.431	FA9550-23-1-0508	-	147,975
	12.000	2017-111CLEMS-01 (GSI Job No. G-6303)	-	21,357

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Defense, continued				
High Photon Density Spatiotemporal (OAM+SAM) Vector Beams for Maritime Environment	12.300	N00014-20-1-2558	688,963	1,250,665
High Power Compatible Photonic Integrated Circuits for Chip-Scale Directed Energy Applications	12.431	W911NF-24-1-0034	-	5,005
High Power Density Engines and Propulsion Systems 2.23.10 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	318,876
High Temperature Subsurface Borehole Thermal Energy Storage	12.300	W912HQ22C0075	-	338,822
Hollow-core MWIR Optical Fibers	12.431	W911NF-19-1-0409	-	76,871
Hybrid Integration for Beam Combining on Silicon Photonics Platform-Optoelectronics Program	12.431	W911NF-18-1-0176	-	2,412
Hydrothermally Grown Cladding Layers on YAG Crystal Material	12.431	W911NF-22-2-0067	-	(67)
Identifying and Evaluating Impacts to Wetlands from the Savannah River Estuary	12.630	W912HZ-19-2-0007	-	277,873
Identifying and Evaluating Impacts to Wetlands from the Savannah River Estuary	12.630	W912HZ-24-2-0021	-	42,397
Impact of Headborne Systems and Vision Impairment on Soldier Performance (S.22.1) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	125,280
Incorporating Matrix Diffusion in the New Modflow Flow and Transport Model for Unstructured Grids	12.000	W912HQ19C0018	-	(1)
Increasing the Output of 2-micron Silicate Fiber Lasers Using Nanoparticle Doping	12.800	FA9550-24-1-0026	-	99,355
Integrated Logistics and Operational Planning for Anticipated Threat Mitigation Under a Contested Logistics Environments	12.300	N00014-22-1-2762	-	126,457
Integrated Modal Control and Beam Combining of High Power Diode Arrays for the Next Generation HEL System	12.300	N00014-17-1-2556	-	18,722
Invasive & Exotic Plant Species Survey and Control Method Evaluations; Townsend Bombing Range; Long and McIntosh Counties, GA	12.000	N62470-21-2-9024	-	27,380
Investigation of Emulators for Single Photon Lidar to Determine its Suitability for Autonomous Vehicle Integration (1.22.7) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	261,724
Laser 3D Printing of Highly Compact Mobile Protonic Ceramic Fuel Cell System for Vehicle Power Supply 2.23.14 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	170,942
Learning Agility for Single and Multiple Swimming Robots via Bioinspired Proprioception	12.300	N00014-21-1-2367	-	230,192
Leveraging Emerging Natural User Interface Technology to Support Optimal Soldier-Vehicle Interaction in Next-Generation Autonomous Vehicles 3.23.13 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	276,522
Mathematical Sciences Program	12.901	H98230-23-1-0024	-	11,004
Minimizing the Impact of Cognitive and Physical Limitations from Humans and Autonomy Through the Development, Training, and Implementation of Human-Autonomy Teaming in Underwater Environments	12.300	N000142412154	-	34,205
Monitoring and Maintaining Trustworthy Networked Autonomy in a Zero Trust Environment 1.23.10 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	295,949
Multilevel Hybrid Quantum-classical Algorithms for Combinatorial Optimization	12.431	W911NF-20-2-0075	106,559	106,559
Multiscale Modeling of High-Temperature All-Solid-State Battery Cells and Packs (2.22.8) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	408,639
Off-Road Obstacle Detection Analysis for Autonomy-Enabled Ground Vehicle Navigation 1.23.14 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	55,490
Online Surrogate Optimization of the Tradespace 3.23.12 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	265,503

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Defense, continued				
Open-Autonomy Verification & Validation (V&V) Framework (1.22.6) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	671,481
Optimal Thermal Management Strategies for Off-Road Hybrid Electric Autonomous Vehicles in Extreme Ambient Conditions 2.23.13 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	129,257
Passive Battery Pack-Level Thermal Management and Energy Hybridization for Pperation in -40 to 70 °C Range 2.23.11 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	164,652
Photoacoustic Interactions Using Higher Order Bessel Beams Integrated in Time and Space (HOBBITS)	12.300	N00014-20-1-2037	150,000	287,332
Photonics: Novel Solid State Lasers and Laser Materials	12.431	W911NF-22-2-0092	-	77,570
Physics Guided Discovery of Electrolytes for Low-Temperature Batteries 2.23.12 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	76,669
Point-of-Injury Application of Hydrogel Embedded Dexamethasone for Severe Traumatic Brain Injury	12.000	W81XWH-20-C-0114	-	115,012
Power Scaling of Combinable Fiber Lasers to Beyond 5kW	12.431	W911NF-17-1-0454	-	(1)
PRECOgnITION: PRobabilistic prEdiction from CONtext determinaTION 1.23.13 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	93,460
Pulse-Based Clock Synchronization for Embedded AI	12.000	W911NF2020054	-	(5,597)
Radio-Frequency Detection and Classification of Single-Cell Metabolic State	12.431	W911NF-24-1-0032	-	41,465
REU in Computational Number Theory	12.901	H98230-24-1-0033	-	33,415
REU in Number Theory	12.901	H98230-23-I-0020	-	33,202
RF Bioelectronics: Noninvasive Measurement and Control of Bacterial Bioelectricity	12.431	W911NF-22-1-0044	-	188,043
Securing Heterogeneous Internet of Battlefield Things (IoBT) via Explainable AI-based RF Sensing	12.431	W911NF-24-1-0044	-	34,764
Segregation Induced Grain Growth Anomalies in Nanocrystalline Alloys	12.431	W911NF-20-2-0122	-	131,885
Spatial-AI Real-Time Mapping for Off-Road Ground Vehicles (1.22.9) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	374,862
Standardized Modular Secure Firmware Update Framework for Military Vehicles 1.23.12 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	248,444
Stochastic Powertrain-Mobility Optimal Control for High Dynamic Off-Road Driving (2.22.9) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	546,937
Structured Light Propagation for Remote Photoacoustic Interactions	12.300	N00014-24-1-2288	12,000	21,120
Synchronizing Collaborations for Human-Autonomy Teaming and Ethical Autonomy Use	12.800	FA9550-23-1-0624	-	616,675
TA_1_Testbed_Gao	12.910	HR0011-23-2-0008	-	224,197
TA_1_Testbed_Nagatomi	12.910	HR0011-23-2-0008	-	330,783
TA1_1_Testbed_Calhoun	12.910	HR0011-23-2-0008	-	88,920
TA1_1_Testbed_Hoover	12.910	HR0011-23-2-0008	-	50,478
TA1_3_Analysis_Karig	12.910	HR0011-23-2-0008	-	20,696
TA2_1_Build_Campbell	12.910	HR0011-23-2-0008	-	204,902
TA2_1_Build_Karig	12.910	HR0011-23-2-0008	-	167,339
TA2_2_Test_Campbell	12.910	HR0011-23-2-0008	-	4,263
TA2_2_Test_Karig	12.910	HR0011-23-2-0008	-	184,729
TA2_3_Deploy_Campbell	12.910	HR0011-23-2-0008	-	1,168
The Spread of Trust and Distrust in Distributed Human-Autonomy Teaming Constellations	12.800	FA9550-21-1-0314	212,295	448,988
Theoretical Study for Infinite-Layer Nickelate Superconductors	12.800	FA9550-23-1-0153	116,915	144,473
UCONN DREAM PROGRAM CENTER 2022	12.000	W56HZV-21-2-0001	719,381	719,381
URE Site: Space-Defense Undergraduate Research Experience	12.800	FA9550-23-1-0448	39,977	103,643
U.S. Investigating the Range of Response of Auroral Electron Precipitation in High Latitude Electrodynamics	12.800	FA9550-19-1-0130	-	1,209
VANTAGE: Vehicular Aerial Navigation of Tethered Autonomous Ground Systems 1.23.11 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	31,114

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Defense, continued				
Vehicle Propulsion Digital Twins and Hardware Integration in the Virtual Environment (HIVE) (2.22.7) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	714,818
Vehicle Propulsion Digital Twins: High-Performance Computing (HPC)-Based Next Generation High-Fidelity Powertrain Co-Simulation for Ground Vehicle Systems (2.22.6) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	275,764
Virtual and Physical Prototyping Aided by Continuous Experimental Feedback: Deep Orange 15 Project (3.22.9) (VIPR-GS)	12.000	W56HZV-21-2-0001	-	1,219,394
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	278,997
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	368,782
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	160,142
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	389,296
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	140,961
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	163,011
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	161,170
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	217,151
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	2,407,072
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	34,347
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	289,866
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	141,535
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	304,153
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	60,990
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	257,135
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	179,515
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	185,544
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	127,390	127,390
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	49,880
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	1,839,292
Virtual Prototyping of Ground Systems (VIPR-GS)	12.000	W56HZV-21-2-0001	-	305,097
Virtual Prototyping of Ground Systems (VIPR-GS) (Seed - Razi)	12.000	W56HZV-21-2-0001	-	62,382
Virtual Sensor Reconstruction for Offroad Autonomous Vehicle 1.23.15 - Zoran Filipi (VIPR-GS)	12.000	W56HZV-21-2-0001	-	205,912
Pass-through programs from: Applied Research Associates, Inc. Military Working Dog Protective Suit	12.000	S- D00122-010-02-CLEM/ PO21-01415	-	10,600
Arcadis, Inc Thermal In-Situ Sustainable Remediation (TISRSM) to Enhance Biotic and Abiotic Reactions and Accelerate Remediation Timeframes	12.000	04 D20-222/ 30027243.00003 / 30027243	-	16,348
Auburn Univ. Migratory Behavior of Diadromous and Potamodromous Fish at a Rock Arch Rapids Structure in the Cape Fear River, North Carolina	12.630	20-FAA-360863-Clemson	-	1,688
Brockington and Associates, Inc. Conservation Assessment and Preservation Services on 1942-1943 Prisoner of War (POW) Map	12.000	NONE	-	9,567
Cornerstone Research Group, Inc. Compression Garment with Embedded Electronics for Ambulatory Health & Performance Monitoring Signature Management Textiles	12.000 12.000	2023-0331 PO # 2021-0525 / W911QY-21-C-0046	- -	17,930 46,352
Georgia Institute of Technology First-Order Optimization Methods for Stochastic Dynamic Programming	12.800	AWD-003884-G1 / PO-5296502	-	55,778

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Defense, continued				
Pass-through programs from:				
Leidos, Inc				
Leidos IARPA SMART ePANTS	12.000	P010292564	-	572,688
Massachusetts Institute of Technology				
IBAS National Imperative for Industrial Skills Full Proposal: Advanced Manufacturing Technologist Training for the Aerospace & Defense Industry of Massachusetts	12.420	S6219 / PO 1013748	-	28,891
Virtual Manufacturing Lab (VM-Lab): A Multimedia Design House for Digital Learning in Manufacturing- USA Workforce Education	12.300	S4916 / PO# 388434	-	3,450
Mile Two LLC				
JADE-C2: Joint Activity Design Evaluation for Command and Control	12.800	2023-CLEMSON-STTR-0001	-	43,758
Naval Postgraduate School				
Gate Drive and Smart Control for Fast Light-Weight DC Solidstate Circuit Breaker	12.300	N00244-21-2-0001	-	5,243
Northern Arizona University				
Dynamic Data-Driven Decision Making, Planning and Communications in Autonomous Unmanned Aerial Vehicle Networks for Disaster Management	12.800	1004437-01	-	292,285
Northrop Grumman IT, Inc				
Fiber Laser Materials Research	12.000	PO #5300037834	-	3,897
Purdue Univ.				
Theory and Algorithms for Two-Stage Decision-Making Under Conflict and Uncertainty	12.431	13001354-003	-	42,210
Rowan University				
Advancing Structural Materials for Army Modernization Priorities via Direct Write Approaches	12.431	51291-4	-	157,498
TDA Research, Inc.				
Optimal Rewarming Solutions for Cryopreserved Tissue Systems	12.000	GS.1403.021.CLEM.22.01	-	127,491
Univ of North Carolina Wilmington				
Re-evaluation of Fish Passage at the Nature-Like Rock Ramp Fishway on the Cape Fear River	12.300	58649A-23-0311-CLEMSON-SUB-INT	-	89,107
Univ. of Arkansas				
Inferring Network Models from Spatial Snapshots for Systems and Synthetic Biology Applications	12.431	UA2023-373 / SPC-006909	-	29,361
Univ. of Cincinnati				
Space Robotics Technologies Enabling a Servicing to Service a Cooperative of Non-cooperative Client Involving Contact Operations	12.800	015843-00002	-	9,014
Univ. of Maryland				
UMD-ARL Alliance for Additive Manufacturing Science (Task: Functional Polymer-Based Integrated Multimodal Structural Health Monitoring and Electromagnetic Shielding)	12.431	109358-Z8468201	-	70,743

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Defense, continued				
Pass-through programs from:				
Univ. of Michigan				
A Novel Strategy to Prevent Central Auditory Disorders After Blast Exposure	12.420	SUBK00020190 / PO# 3007913861	-	1,519
Automotive Research Center (ARC) A Center of Excellence in Modeling and Simulation of Ground Vehicles U.S. Army Ground Vehicle System Center, Detroit Arsenal, Michigan	12.910	SUBK00021898 / PO 3008069614	-	8,983
Automotive Research Center Phase V - Cooperative Agreement: 1.33: Trust-based Symbolic Motion and Task Planning for Multi-robot Bounding Overwatch	12.910	SUBK00013068 / PO 3006000781	-	15,258
The Virtual Prototyping of Ground Systems (VIPR-GS) Center	12.000	need	-	(2,376)
VIPR-GS 2.4- Integrated Transient Control and Thermal Management of Autonomous Off-Road Vehicle Propulsion Systems- ARC Phase V Cooperative Agreement	12.910	SUBK00013774 / PO 3006125310	-	36,853
VIPR-GS 2.5- Energy Management of Multi-Scale Vehicle Fleets- ARC Phase V Cooperative Agreement	12.910	SUBK00013775 / PO 3006125656	-	(129)
Univ. of Tennessee				
Edge Deep Learning Optimal Control (EDLOC) for Distributed Naval Energy Management with Advanced Performance Feedback Metrics	12.300	A23-1222-S001	-	181,962
University at Buffalo				
Computer Vision Based Intelligent Assistant for Mistake Proofing of Complex Maintenance Tasks on Navy Ships	12.300	N001741910025 / PO# R1239105	-	(871)
University of Essex				
Engineered Biofilms with Modular Functionality for Persistent and Survivable Naval Platforms	12.300	(Essex Reference #13715)	-	3,251
Virginia Polytechnic Institute				
Topology and Emergence with Ultracold Atoms and Molecules	12.431	450910-19244	-	17,663
West Virginia Research Corporation				
Testing the Viability of Majorana-Based Platforms for Topological Quantum Computation through Theoretical and Numerical Modeling	12.300	23-178-CU / MM000487614	-	91,793
William Marsh Rice University				
Next Generation Teams and Organizational Subsystems Research	12.630	R1A604	-	140,887
Zoological Society of San Diego				
New Monitoring Tools to Understand Drivers of California Least Tern Reproductive Success	12.005	57-6000254	-	23,667
Total Department of Defense			<u>3,242,537</u>	<u>29,337,510</u>
Department of Interior				
An Atlas and Registry for Seabird Colonies and Associated Habitats in the Northern Gulf of Mexico	15.812	G22AC00008 (RWO #106)	-	19,892
Assessing Nesting Status of Black-capped Petrels Following Acute Disturbance Events	15.812	G22AC00122	4,900	22,404
Conservation and Life History of the Northern Pine Snake (Pituophis melanoleucus) Across North Georgia	15.664	F21AC00507-00	-	5,311
Cooper River Canoe Project	15.929	ST-251081-OMS-21	-	6,231

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Interior, continued				
Distribution and Drivers of the Popeye Shiner in Southern Ohio	15.660	F22AC01950-00	-	3,118
Edisto River Flow Effects on Summer Water Temperatures: Are Thermal Tolerances of SWAP Fishes Exceeded at Low Flows?	15.634	P24019483623 SCDNR FY2023-015	-	55,928
Ethnographic Overview and Assessment of Congaree National Park	15.945	P23AC01808-00	-	13,817
Evaluating and Informing the Future of NPS Interpretation Planning	15.945	P21AC10777-00	-	32,515
Growing Visitation and Enhancing Visitor Experiences at National Wildlife Refuges (NWRs) Through Better Estimation Techniques	15.812	G19AC00438 (RWO #104)	-	12,313
Importance of Southeast Wintering Grounds to Continental Waterfowl Populations	15.654	F20AC11121	-	9,354
Investigating Impediments to Recruitment of the Carolina Heelsplitter (<i>Lasmingona Decorata</i>)	15.657	F20AC11776	-	6,042
Natural and Anthropogenic Influences on Tidally Influenced Forested Wetlands of the Southeast U.S.	15.808	G19AC00208	-	36,693
South Carolina Water Resources Center Program Management	15.805	G21AP10579-01	81,527	110,410
South Carolina Water Resources Center Program Management	15.805	G21AP10579	-	1,018
Spatial Ecology, Movement Patterns, and At-Sea Habitat use of Brown Pelicans in the South Atlantic Bight	15.812	G16AC00395 (RWO #100)	-	85,489
USFWS Toolkit: Capacity Building for Visitor Estimation	15.654	F23AC01345-00	-	20,133
Pass-through programs from:				
Georgia Dept. of Natural Resources				
Conservation and Life History of the Northern Pine Snake Across North Georgia	15.634	46200-605-200126 / PO # 152919	-	218
National Fish & Wildlife Foundation				
Advancing Northern Bobwhite Management in the Longleaf Pine Range (AL, GA, LA, VA)	15.663	1903.19.073779	53,563	53,563
NC Wildlife Resources Commission				
Allengheny Woodrat Camera Surveys	15.611	WM-0370	-	36,606
Old Dominion University				
NCR Visitor Use Surveys	15.945	22-110-300541-004	-	2,008
SC Dept. of Natural Resources				
Basin-wide Planning for Bartram's Redeye Bass in the Savannah River	15.634	SCDNR FY2021-029 P24019497620	-	1,271
SC - Conservation of South Carolina Coastal Plain Reptiles and Amphibians II	15.634	SCDNR FY2024-016 / P24014406022	5,571	19,674
SC - National Bobwhite and Grasslands Initiative - South Carolina	15.611	SCDNR FY2023-031 P24014400122	-	27,018
SC- Assessing Occurrence and Habitat Associations of the Six Priority Small Mammal Species in High Elevation Appalachian Forests of South Carolina	15.634	SCDNR FY2024-017 / P24019483823	-	20,062
Southeast Aquatic Resources Partnership				
Distribution and Habitat Associations of Species of Greatest Conservation Need and Assessment of Aquatic Organism Barriers in the Freshwaters of the U.S. Virgin Island	15.634	USVI-SARP-CSWG-2024	-	21,324
Incorporating Fish Species Swimming Speed into Barrier Removal Prioritization - Swim	15.608	none	-	77,552

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Interior, continued				
Virginia Polytechnic Institute What Leads to Better Outcomes in National Park Service Interpretation?	15.945	462773-19244	-	107,179
Wildlife Management Institute Black Hunters: Reclaiming the Tradition	15.628	MSCG 2022-01	-	7,698
Total Department of Interior			<u>145,561</u>	<u>814,842</u>
Department of Justice				
An Evaluation of De-Escalation Training to Understand the Links between Training and Outcomes Clemson University Police Behavioral Health Crisis Response Program	16.560	15PNIJ-21-GG-02719-RESS	407,774	485,514
GIS Application for Building a Nationally Representative Forensic Taphonomy Database	16.745	15PBJA-22-GG-03012-MENT	-	9,375
Forensic Taphonomy Database Networks and Pathways of Violent Extremism: Effectiveness Dis/Misinformation Campaigns	16.560	2020-DQ-BX-0025	-	127,546
	16.560	15PNIJ-23-GG-01381-DOMR	-	128,063
Pass-through programs from: Allendale County School District No. 1 Allendale County Schools STOP School Violence Program	16.839	2023001995	-	17,294
Eluna Network Mentoring Youth Affected by Opioid and Other Drug Misuse through Camp Mariposa	16.726	None	-	6,291
Greenville County Bureau of Justice Assistance FY2022 Comprehensive Opioid, Stimulant, and Site-Based Program Grant	16.838	none	-	136,792
Oconee County Oconee County (SC) Addiction Recovery & Solutions Initiative	16.745	001/ 2020-AR-BX-0045	-	36,020
Oconee County (SC) Justice and Mental Health Planning & Implementation Initiative	16.745	001/ 2020-MO-BX-0045	16,421	74,689
SC Dept. of Alcohol and Drug Abuse Svcs. Evaluation of the South Carolina COSSUP Initiative	16.838	OJP24-TX-EVAL-CLM-20231001-20240930	-	32,080
Univ. of North Florida Missouri 29th Judicial Circuit Co-Occurring Treatment Court Enhancement Initiative	16.585	022-002	-	17,276
The Missouri 29th Judicial Veterans Treatment Court (VTC) Enhancement Initiative	16.585	022-003	-	16,698
Total Department of Justice			<u>424,194</u>	<u>1,087,637</u>
Department of Transportation				
A Software Tool for Securing Deep Learning Against Adversarial Attacks for CAVs - Mashrur Chowdhury (Main PI) of Main CU#2021810.	20.701	69A3551747117	-	23,222
A Web-Based Tool for Cross Dock Trailer Scheduling - Mashrur Chowdhury (Main PI) of Main CU#211-2021810.	20.701	69A3551747117	-	22,166
Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Graduate Fellowship	20.215	693JJ32345039	-	5,949
Intelligent River® Bridge Flood Monitoring System to Improve Transportation Mobility - Main PI Chowdhury, Mashrur A	20.701	69A3551747117	-	107,415

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Transportation, continued				
National Center for Transportation Cybersecurity and Resiliency (TraCR)	20.701	69A3552344812	214,423	663,822
National Center for Transportation Cybersecurity and Resiliency (TraCR) - Main PI - Chowdhury 211-2026310	20.701	69A3552344812	-	65,042
National Center for Transportation Cybersecurity and Resiliency (TraCR) - Main PI - Chowdhury 211-2026310	20.701	69A3552344812	-	32,530
National Center for Transportation Cybersecurity and Resiliency (TraCR) - Main PI - Chowdhury 211-2026310	20.701	69A3552344812	-	41,865
National Center for Transportation Cybersecurity and Resiliency (TraCR) - Main PI - Chowdhury 211-2026310	20.701	69A3552344812	-	18,124
National Center for Transportation Cybersecurity and Resiliency (TraCR) - Main PI - Chowdhury-211-2026310	20.701	69A3552344812	-	20,305
National Center for Transportation Cybersecurity and Resiliency (TraCR) Combined with 2026310 SF425	20.701	69A3552348317	-	28,472
Transfer of Technologies for Performance Degradation Prediction and Channel Switching in Vehicular Networks State-of-the-Art Products-Mashrur Chowdhury (Main PI) of Main CU#2021810.	20.701	69A3551747117	-	33,236
Transfer of Unmanned Aircraft Systems Technology to SCDOT for Enhanced Bridge Inspections-Chowdhury, Mashrur A (Main PI) of Main CU#2021810.	20.701	69A3551747117	-	87,832
University Transportation Center - Center for Connected Multimodal Mobility (C2M2)	20.701	69A3551747117	568,958	827,182
WE AIM: A VR/AR Hybrid Approach to Aviation Maintenance Technician General Curriculum in High School Programs	20.112	NG-AWM-0009-24-01-0 (69A3352450021)	-	37,939
Pass-through programs from:				
National Academy of Sciences				
Augmenting the Hearing of Safety-Critical Sounds for Highway Workers Using Artificial Intelligence	20.200	NCHRP-247	-	7,048
UAS Operations Practical Skills Pilot Program for State DOTs	20.200	HR 20-447(047)	-	186
North Carolina A&T State Univ.				
Center for Regional and Rural Connected Communities	20.701	270204A	-	143,561
SC Dept. of Transportation				
A Preliminary Cost Estimating Model for Transportation Projects	20.205	SPR 757	-	74,925
Best Practices on Collection Asset Information from the Construction Stage	20.205	SPR 759	-	46,317
Cost-effective Screening, Assessment, and Repair of Timber Piles	20.205	SPR 772 - SCDOT P042963	-	23,811
Data Driven Decision Making for Consultant Scope of Services and Fee Development, Update, and Maintenance	20.205	SPR 770 / P042638	-	40,073
Develop or Improve Construction Scheduling Methods	20.205	SPR 764	-	179,499
Methods and Model for Construction Projects	20.205	SPR 756	26,384	51,347
Impact of Utility Delays on Project Delivery	20.205	SPR 755	-	69,171
Investigation and Assessment of Effective Patching Materials for Concrete Bridge Decks	20.205	SPR 754	-	13,884
Optimization of Cement Modified Recycled Base (CMRB) Planning, Design and Testing	20.205	SPR 771 - SCDOT P042962	-	34,008
Safety Analysis of Highway Curves Where Crashes Occur in South Carolina	20.205	SPR 2-24 / P043027	-	48,078
Transfer of Unmanned Aircraft Systems Technology to SCDOT for Enhanced Bridge Inspections	20.205	SPR 1-24 P042907	-	427,522
Transportation Technology Transfer Service (T3S)	20.205			

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Transportation, continued				
Ultra-High-Performance Concrete (UHPC) Used as a High Friction Surface Treatment (HFST) on Pavements and Bridges	20.205	SPR 762	-	113,317
Update to SCENARIO_PC	20.205	2130; SPR 745	69,442	188,181
SC State Univ.				
Data-driven Models for Vision-Based Commercial Motor Vehicle Safety Work Zone	20.237	23-570058-ENG-CU-SC	-	203,539
toXcel, LLC				
Additional Considerations for Making ADS Vehicles Accessible for All Road Users	20.000	TO# 693JJ921F000157/ 2019-006	-	84,569
Univ. of South Carolina				
Field Trials for Cost-Effective Strengthening of SC Load Posted Bridges	20.205	22-4618 PO#2000060577 USC 10011050	-	109,297
Total Department of Transportation			879,207	3,873,433
National Aeronautics and Space Administration				
21-FERMI21-0010, Search for Long-Term in BLAZARS	43.001	80NSSC22K1578	-	70,992
21-FERMI21-0011, The Cosmic History of Light	43.001	80NSSC22K1579	-	117,177
21-FERMI21-0013, Characterizing the Gamma-Ray Emission from Low-Luminosity AGN	43.001	80NSSC22K1580	-	17,859
21-FERMI21-0013, Characterizing the Gamma-Ray Emission from Low-Luminosity AGN	43.001	80NSSC22K1581	-	20,989
21-FERMI21-0014, Measurement of the Isotropic Diffuse Gamma-Ray Background	43.001	80NSSC22K1582	-	64,671
21-NUSTAR21-0007 Probing AGN Obscuration Variability with Nustar and Nicer	43.001	80NSSC23K0484	-	98,462
21-NUSTAR21-0008, Unveiling Masquerading BL Lac Objects	43.001	80NSSC22K1807	-	84,884
21-SWIFT21-0001, Swift Characterization of Periodic-Emission Blazars	43.001	80NSSC23K0294	-	28,118
21-SWIFT21-0002, The Legacy of Swift-Bat: The Hard X-Ray Sky	43.001	80NSSC22K1469	-	15,371
21-SWIFT21-0004, Photometric Redshifts for FERMI Blazars with SWIFT/UVOT	43.001	80NSSC22K1472	-	36,271
22-2FIRET22-0020 AI-enabled Drone Swarms for Fire Detection, Mapping, and Modeling	43.001	80NSSC23K1393	8,921	23,094
22-ASTRO22-0214, Simulating the Electromagnetic Signatures of Accreting Unequal Mass Black Hole Binaries	43.001	80NSSC23K1443	-	38,983
22-FERMI22-0017, The Evolution of Blazars Across Cosmic Time	43.001	80NSSC24K0284	-	8,771
22-FERMI22-0020, Gamma-Ray Emission from Protostellar Jets	43.001	80NSSC24K0283	-	63,192
22-FERMI22-0021, Studying the Origin of Historical Galactic Transients with Fava	43.001	80NSSC24K0631	-	23,626
22-FERMI22-0022 Photometric Redshifts for FERMI BL LACS	43.001	80NSSC24K0629	-	14,386
22-NICER22-0002, NICER Characterization of OJ 014: A Periodically Emitting Blazar	43.001	80NSSC23K1040	-	36,156
22-NUSTAR22-0004, Discovering Compton-Thick AGN with A.I.	43.001	80NSSC23K1611	-	71,688
22-NUSTAR22-0005, Uncovering the Most Powerful Jets Through Cosmic Time	43.001	80NSSC23K1612	-	11,424
22-SWIFT22-0010, Swift Characterization of Three Very High Energy Galactic Sources with Bright Rosat Counterparts - Cycle 19	43.001	80NSSC23K1149	-	30,085
22-SWIFT22-0011, Photometric Redshifts with Swift/UVOT - Cycle 19	43.001	80NSSC23K1150	-	39,295

The accompanying notes are an integral part of this schedule.

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Aeronautics and Space Administration, continued				
22-XMMNCTFY-22-002 Compton-Thick AGN: The Hunt Continues	43.001	80NSSC23K0146	-	7,327
23-ADAP23-0111, Unveiling Obscured Accretion in the Local Universe	43.001	80NSSC24K0633	-	19,296
23-ADAP23-0124, Quasi-Periodic Oscillation in Blazars	43.001	80NSSC24K0635	-	19,923
23-UI-0004 Revolutionizing the Future of Aviation Maintenance: A Workforce Development Plan to Navigate the Complexities of a New Aviation Maintenance Ecosystem	43.002	80NSSC24K0201	3,998	33,373
A Joint Nustar and XMM-Newton Monitoring of a Candidate Changing-Look Compton Thick AGN	43.001	80NSSC22K0011	-	8,500
A XMN-Newton Monitoring of a Candidate Changing-Look Compton Thick AGN	43.001	80NSSC22K0335	-	4,421
An Investigation of Ion-Neutral Coupling During Active Auroral Conditions	43.001	80NSSC19K0810	49,723	245,035
An Investigation of Ion-Neutral Coupling During Active Auroral Conditions	43.001	80NSSC19K0810	-	24,465
BL Lacertae Objects at High Redshifts	43.001	80NSSC21K1888	-	405
Bridging the Gap: A Sensitive Catalog of MEV Sources	43.001	80NSSC23K1491	-	40,818
Characterizing New Galactic Accelerators with XMM-Newton	43.001	80NSSC23K1463	-	33,431
Chemical Evolution of the Building Blocks of the Solar System	43.001	80NSSC20K0338	-	15,461
Compton-Thick AGN: The Hunt Continues	43.001	GO2-23072X	-	37,303
Experimental and Theoretical Investigation of Velocity Dependent Ion-Atom Charge Exchange with Coincident X-Ray Spectroscopy	43.001	80NSSC24K0182	4,289	17,699
Exploring the Causes of Water Vapor Variability in the Mesosphere, Derived Residual Mean Circulation and Implications for the Composition of the Thermosphere Using SABER and GOLD	43.001	80NSSC20K1353	55,488	204,475
Exploring the Response of the Ionosphere/Thermosphere to the Madden Julian Oscillation	43.001	80NSSC22K1010	79,531	243,491
Finding Massive BH Binaries with Gravitational Waves and Electromagnetic Surveys	43.001	80NSSC24K0440	9,808	67,873
Gamma-Ray Emission from Galactic Wolf-Rayet Stars	43.001	80NSSC21K1916	-	3,719
Hunting for Compton-Thick AGN in the Local Universe	43.001	80NSSC22K0005	-	581
Hunting High Redshift Blazars with Swift and Sara-CT/ORM	43.001	80NSSC21K1400	-	36
Momentum Resolved Charge Exchange Cross Section Measurements and X-Ray Spectroscopy	43.001	80NSSC19K0679	-	3,541
Role of Lower Atmosphere Waves in Preconditioning the Ionosphere-Thermosphere Responses to Geomagnetic Storms Using ICON and GOLD	43.001	80NSSC22K0018	8,352	53,858
VortEx - Vorticity Experiment	43.001	80NSSC19K0776	24,143	63,373
Vortex - Vorticity Experiment	43.001	80NSSC19K0776	-	61,002
Pass-through programs from:				
Auburn Univ.				
A Joint Theoretical and Experimental Approach to Dielectronic Recombination Data Needs	43.001	22-PHYS-209394-Clemson	-	133,019
Center for the Advancement of Science				
Unlocking the Cotton Genome to Precision Genetics	43.002	GA-2019-007	26,878	33,638
College of Charleston				
2022 R3-0007, Appendix I: Coupled CO2 Capture and Conversion at Ambient Conditions to Enable In-Space Propulsion	43.008	521537-CM	-	21,964
Clemson University NASA Mirco-g NEXt Challenge	43.008	521383-RP-CM-014	-	14,997
ClemsonR3-Brumaghin-H-003: Development of Screening Methodologies to Quantify Radioprotection of DNA from HZE Ion Damage	43.008	521583-CM	-	41,419

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Aeronautics and Space Administration, continued				
Pass-through programs from:				
College of Charleston, continued				
Development of Physics-based Computational Models for NASA's ISRU Pilot Excavator	43.008	521563-NE-RID-CM-005	-	14,100
Dynamic Topology Optimization for Robust, Lightweight Origami Rovers	43.008	521383-PA-CM-014	-	11,911
Electrochemical Cell Integration for In-situ Utilization of Captured Carbon Dioxide 15-	43.008	521383-PA-CM-020	-	18,707
Electrochemical Process for Stabilizing and Lowering the pH of Urine for Water Recovery During Space Missions	43.008	521383-GRF-CM-012	-	12,354
Electrochemical Recovery and Conversion of Captured In-Space CO2 to Methane Fuel	43.008	521383-PA-CM-017	-	21,078
Energy Storage Devices for Operation in Extended Temperature Range -60 to 60 oC	43.008	521383-PA-CM-013	-	15,138
Ga2O3 Schottky Diodes for High Temperature Power Electronics	43.008	521383-RP-CM-012	-	18,719
GRF 2022-23: Creep Behavior of Lightweight, Ti-based Multi-Principal Element Alloy	43.008	521383-GRF-CM006	-	(691)
GRF 2022-23: Validating Satellite Remote-Sensing of Aerosols with Ground-based Low-Cost Sensors	43.008	521383-GRF-CM008	-	1,706
GRF for Nancy Chen - Solvent-Free Dry Coating Method for High Mass Loading and High Volumetric Density Si-based Anodes for Lithium-ion Batteries	43.008	521383-GRF-CM-010	-	13,186
Impact Resistance of Nanocellulose Films with Bouligand Microstructures by Integrating Defects	43.008	521383-GRF-CM-009	-	16,000
Investigation of Microbial Interactions and Changes in Metabolite Production Due to Decreasing Dietary Complexity in the Murine Gut	43.008	20-013-MIST-CU-004	-	7,500
Microstructure Texture Optimization for Creep via Heaviside Function-Based Algorithm	43.008	521383-GRF-CM-013	-	16,366
MIST 2023-24: Shear Strength Characterization of Lunar Icy Regolith for ISRU Application	43.008	521383-MS-CM-003	-	7,500
Novel Materials for Spacecraft Optical Windows	43.008	521383-RP-CM-013	-	15,647
Peroxide-Producing Microbial Fuel Cells for Space Life Support Systems Applications	43.008	521365-CM	47,015	139,648
Quantum Sensing of Solar Flares using Superconducting Detectors	43.008	521383-PA-CM-015	-	14,156
Rapid Laser: 3D Printing of Reversible Solid Oxide Electrochemical Cell Stacks for Producing Pure O2 from CO2 and Storing Electricity into Carbon	43.008	521434-CM	59,460	226,238
REAP 2021-22: Evaluating the Effects of Microgravity on Intervertebral Disc Organoids	43.008	521383-RP-CM006	-	1,602
REAP 2022-23: Deep Eutectic Solvents from Halogen Bonding	43.008	521383-RP-CM011	-	8,393
REAP: Research Facilitation	43.008	20-013-REAP-CU016	-	342
REAP: Research Facilitation	43.008	20-013-REAP-CU018	-	9,377
RGP 2022-23: Metal Free Planetary Outpost Food Packaging for 5-Year Shelf-life Food System	43.008	521340-CM003	-	858
RGP 2022-23: Reconfigurability of Battery Storage Systems and Its Application in Battery Equalization	43.008	521340-CM002	-	(6,202)
RGP 2023-24: Experimental and Theoretical Investigation of Quantum Effects in the Electrochemistry of Advanced Li-ion Li-S Energy Storage Systems	43.008	521563-NERID-CM-004	-	24,907
RockSat-C: Nanoparticle Gyroscope	43.008	521383-RO	-	313
RPG 2023-24: Characterizing the Disk around CI Tau using CO Rovibrational Spectroscopy	43.008	521563-CM004	-	34,648

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Aeronautics and Space Administration, continued				
Pass-through programs from:				
College of Charleston, continued				
SC Space Grant & SC Sea Grant Kathryn Sullivan Earth & Marine Science Fellowship 2023-2024 for Tokea Payton: Utilization of coupled human and natural systems modeling to assess lobster trap removal impacts on cryptic coral reef biodiversity	43.008	521383-KS-CM-002	-	7,162
SC Space Grant Campus Director Administrative Budget	43.008	521383-CD-CM	-	1,782
Shoot for the Stars: Getting Involved in Space-Centered Research	43.008	521383-SOA-CM-003	-	6,000
Student Participation in Developing Nanomaterials-Derived Technologies for Space Applications	43.008	521383-PA-CM-016	-	11,500
Thermally Stable Lithium-Sulfur Batteries for NASA Missions	43.008	521383-GRF-CM-011	-	14,450
Toward Bio-Inspired Energy-Efficient Drilling into Lunar Regolith	43.008	521383-PA-CM-012	-	13,785
UG 2023-24: Improving Methods in Ionospheric Instrumentation	43.008	521383-UG-CM-008	-	7,500
UG 2023-24: Ionospheric High-Frequency Chirpsounder	43.008	521383-UG-CM-006	-	7,500
UG 2023-24: Langmuir Probe	43.008	521383-UG-CM-007	-	7,500
UG2023-24: Electroplating of Tungsten Wires with Nickel for the Production of Magnetic Probes	43.008	521383-UG-CM-009	-	7,500
Undergraduate Research Experience in Electrochemical Technology to Generate Fuel and Food from CO2 and Urine to Support Life on Mars	43.008	521383-PA-CM-019	-	8,000
Wood Wasp-Inspired Dual-Reciprocating Drilling into Lunar Regolith	43.008	521383-PA-CM-018	-	14,372
Embry-Riddle Aeronautical University Sporadic-E ElectroDynamics	43.001	61559-2	-	36,722
KBR Wyle Services, LLC Mitigating Headward Fluid Shifts with Venous-Constrictive Thigh Cuffs During Spaceflight	43.000	SMS0011602/ Natasha Long	-	63,758
Michigan State Univ. NASA Research and Technology Development to Support Crew Health and Performance in Space Exploration Missions	43.003	RC115943CU	-	18,379
Smithsonian Astrophysical Observatory Chandra TOOs For Fermi Galactic Plane Transients (Proposal No. 24300401)	43.001	G03-24013X	-	4,706
Compton-Thick AGN: The Hunt Continues (Proposal No. 25700267)	43.001	G04-25065X	-	7,713
Identifying and Studying N_H Variable AGN	43.001	AR4-25009X	-	1,653
Touchstone Research Laboratory, Ltd. Precision Heated Tooling for OOA Curing of Thin-Ply Composites	43.000	80NSSC21C0021-1	-	66,185
Univ. of New Hampshire TOMEX Plus: Turbulent Oxygen Mixing Experiment Plus	43.001	L0058	-	86,682
Univ. of South Carolina Augmenting Physics-Based Design and Multi-Physics Based Manufacturing with Data Driven Models to Manufacture Advanced Composites Structures with Automated Fiber Placement PO 2000073750 USC 10011516	43.008	24-5668 PO # 2000073750 USC 10011516	-	22,054

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Aeronautics and Space Administration, continued				
Pass-through programs from:				
University of Alaska - Fairbanks				
Auroral Waves Excited by Substorm Onset Magnetic Events (AWESOME)	43.001	UA 21-0101 / P0549262	-	(4,402)
Auroral Waves Excited by Substorm Onset Magnetic Events (AWESOME)	43.001	UA 21-0101 / P0549262	-	(33,731)
Auroral Waves Excited by Substorm Onset Magnetic Events (TOTALLY AWESOME)	43.001	UA 22-0108 / P0560920	-	33,731
Auroral Waves Excited by Substorm Onset Magnetic Events (TOTALLY AWESOME)	43.001	UA 22-0108 / P0560920	-	86,431
University of the District of Columbia				
NASA MIRO: Center for Advanced Manufacturing in Space Technology & Applied Research at UDC (CAM-STAR)	43.008	SUB-0012020 / P2200367	-	(2,168)
Total National Aeronautics and Space Administration			<u>377,605</u>	<u>3,508,203</u>
National Science Foundation				
ABI Innovation: Fast Algorithms and Tools for Single-Molecule Sequencing Reads	47.074	1759856	-	182,193
ABR: Collaborative Research: Smart Earpiece for Supporting Healthy Eating Behaviors	47.070	1835974	-	49,760
Addressing Student Skills Gaps in Water Treatment Operator Education Utilizing Virtual Reality Enabled Curriculum Resources	47.076	2202051	-	116,932
ADVANCE Institutional Transformation at Clemson University	47.076	1629934	-	121,147
An Integrated Housing Design and Logistics Operations Modeling and Analysis Framework for Hurricane Relief	47.041	2053660	-	129,798
ART: STRIDE - Stimulating Translation of Research via Intentional Development and Ecosystem	47.084	2331364	-	195,215
Azole Antifungals Coordinate Metals and Create Reactive Oxygen Species That Damage DNA and Cause Chromosomal Instability	47.049	2203847	-	149,557
Broadband Microwave Flow Cytometry: Comprehensive Nanoparticle Sensing and Characterization	47.041	1711463	-	2,697
Building Leadership among Science Teachers in Rural Regions: Designing, Developing, and Implementing a Science Teacher Leadership Academy	47.076	2243496	-	243,541
CAREER: A Task-Invariant Customization Framework for Lower-Limb Exoskeletons to Assist Volitional Human Motion	47.041	2340261	-	33,411
CAREER: An Adaptive Stochastic Look-ahead Framework for Disaster Relief Logistics under Forecast Uncertainty	47.041	2045744	-	58,783
CAREER: Characterizing Nanoparticle Surface Interactions using Dissolution Dynamic Nuclear	47.049	1751529	-	225,850
CAREER: CritComp Pop Ups: A Research Practice Partnership for Co Designing and Implementing Critical Computing Elementary Education Curricula	47.076	2238712	-	229,576
CAREER: Degron-Based Substrates: A Novel Toolkit for Biosensing and Targeted Inhibition	47.041	2416519	-	27,565
CAREER: Diagnosing the Undiagnosable: Using Enzyme Upregulation to Probe Cellular Behavior in Neuropathic Lysosomal Storage Disease	47.041	2047697	-	136,246
CAREER: Diagnosing the Undiagnosable: Using Enzyme Upregulation to Probe Cellular Behavior in Neuropathic Lysosomal Storage Disease	47.041	2047697	-	14,079
CAREER: Digging Deeper to the Roots of Soil Organic Carbon Formation, Persistence, and Function: An Integrated Research, Education, and Outreach Program	47.074	2239752	-	27,556

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
CAREER: Dual Function Materials for Capture and Conversion of CO2 into Methanol and Higher Alcohols	47.041	2154386	-	115,106
CAREER: Dynamic Management of Compressed Arrays for High-Performance Computing Applications	47.070	1943114	-	132,150
CAREER: Dynamic Management of Compressed Arrays for High-Performance Computing Applications - REU Supplement	47.070	1943114	-	492
CAREER: Elastocapillary Fluid Mechanics: Spreading, Splashing, and Instability	47.041	1750208	-	40,706
CAREER: Elucidating Fundamental Structure-Property Relationships in Ionomer Nanocomposites for Redox Flow Batteries	47.049	1848347	-	103,409
CAREER: Enabling Low-Cost, Maintenance-Free, Long-Term Embedded Sensing Without Batteries	47.070	1453607	-	10,284
CAREER: Enabling Low-Cost, Maintenance-Free, Long-Term Embedded Sensing Without Batteries (REU Supplement)	47.070	1453607	-	30,250
CAREER: Ensuring Privacy, Inclusiveness, and Policy Compliance in the Era of Voice Personal Assistants	47.070	2239605	-	14,868
CAREER: Evaluating the Contribution of Sensory Drive to the Divergence of Flower Color	47.074	2237529	-	63,142
CAREER: Human-Inspired Multi-Robot Navigation	47.070	2047632	-	1,253
CAREER: Hybrid Experimental-Computational Modeling Framework for Transformative Research and Multidisciplinary Education in Cardiovascular Biomechanics	47.041	1749017	-	66,168
CAREER: Innovative Methods for Designing Adaptive Clinical Trials	47.041	1651912	-	39,312
CAREER: Integrated Studies of Polar Wave and Magnetosphere-Ionosphere-Thermosphere Couplings from New Observations and Whole Atmosphere Modeling	47.050	1753214	-	118,738
CAREER: Integrating Magnetism into Noncentrosymmetric Frameworks for Spin-Based Electronics	47.083	2338014	-	20,444
CAREER: Leveraging Recommendations for Self-Actualization	47.070	2045153	-	94,798
CAREER: Leveraging Recommendations for Self-Actualization - SUPPLEMENT	47.070	2045153	-	44,218
CAREER: Modeling, Measuring and Controlling Human Comfort in Human-Autonomous-Machine Interaction (HaMI)	47.070	1845779	-	20,018
CAREER: Multi-Chrome Metasurfaces for Dynamic Structural Color and Naked Eye Diagnostics	47.041	2047015	-	115,941
CAREER: Multifunctional Peptide Nanocarriers for Delivery of Nucleic Acid Therapeutics	47.049	2046694	-	122,441
CAREER: Multiscale Surface Structuring by Ultrafast Lasers for Multifunctional Glass Surfaces	47.041	2047000	2,000	44,611
CAREER: Observational and Modeling Investigations of Pulsating Aurora Electrodynamics	47.083	2339961	-	3,751
CAREER: Perceptually Guided Hand Motion Synthesis	47.070	1652210	-	72,203
CAREER: Phenotypic and Developmental Effects of Enhancer Variation on Cichlid Craniofacial Evolution	47.074	1942178	-	48,409
CAREER: Phylogenetic Scale-Dependency of the Patterns and Processes of Quantitative Trait Evolution	47.074	2237613	-	218,880
CAREER: Prioritizing the Development of Team Cognition in Human-AI Teams to Engender the Advancement and Acceptance of AI Teammates	47.083	2237920	-	72,082
CAREER: Protecting Deep Learning Systems against Hardware-Oriented Vulnerabilities	47.070	2047384	-	28,675
CAREER: Quantifying Drought and Vulnerability Indicators for Water Security in a Changing Environment	47.041	1653841	-	33,607
CAREER: Structural Dynamics of Post-Translationally Modified Calmodulin and its Role in Target Recognition	47.074	1749778	-	64,789

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
CAREER: Toward Autonomous Decision Making and Coordination in Intelligent Unmanned Aerial Vehicles' Operation in Dynamic Uncertain Remote Areas - REU Supplement	47.070	2232048	-	2,500
CAREER: Towards Engineering Electronic Defects in Inorganic Luminescent Materials	47.049	1653016	-	43,170
CAREER: Understanding Dynamic Recrystallization Mechanisms in Hybrid In-situ Rolled Additive Manufacturing	47.041	2237401	-	45,737
CAREER: Understanding the Interaction between Mechanical Twinning and Fatigue Crack Growth	47.041	2045082	-	173,830
CAREER: Understanding the Interaction between Mechanical Twinning and Fatigue Crack Growth ; REU Supplement	47.041	2045082	-	1,750
CAREER: Valuing Education and Career Transition Opportunities Raising Student Success in Engineering	47.041	2144213	-	105,549
CAREER: Multiscale Simulations of Nanofluid Assembly for Smart Materials Design	47.049	1944942	-	25,660
CAREER: Exploring the Unknowns: Responses of Soil Microbial Communities to Increased Plant Functional Trait Diversity in Managed Ecosystems	47.074	1941714	-	86,472
CAS: Deconstructing Plastic and Agricultural Waste via Organosulfur Chemistry	47.049	2203669	-	143,715
CCF: EAGER: DeepGreen: Modeling and Boosting Accelerated Computing on Liquid Immersion Cooled HPC Systems	47.070	1942182	-	126,235
CCRI: MEDIUM: Collaborative Research: F1/10 RACECAR: Community Platforms for Safe, Secure and Coordinated Autonomy	47.070	1925500	-	168,465
CDS&E: HAM3R: Heterogeneous Automated Management of Multiscale Methods and Resources	47.070	2204011	-	100,393
CDS&E: HAM3R: Heterogeneous Automated Management of Multiscale Methods and Resources - REU Supplement	47.070	2204011	-	7,179
Characterizing Inclusive Strategies that Retain Black Students in Computer Science to Graduation and Beyond	47.076	2111354	27,756	130,848
Characterizing Inclusive Strategies that Retain Black Students in Computer Science to Graduation and Beyond	47.076	2111354	-	930
Charge Transporting Supramolecular pi-Donor/Acceptor Arrays Based on Redox-Active Metallacycles, Metal-Organic Cages, and Daisy-Chain Coordination Polymers	47.049	2203985	-	193,627
CHS: Small: Developing and Validating a Physically Accurate Light-Scattering Model for the Rendering of Bird and Other Dinosaur Feathers	47.070	2007974	-	113,977
CHS: Small: Investigating the Characteristics of User Representations and Long-Term Experiences in Personal Space Depth Perception in Virtual Reality	47.070	2007435	-	89,124
CICI: RSARC: Secure Time for Cyberinfrastructure Security	47.070	1738902	-	5,943
CICI: UCSS: Human-Centered Cybersecurity in Robotic Surgery (HCCRS) - Coordinating the Human and Cyber Infrastructure for Cybersecurity	47.070	2319891	-	108,119
CICI: UCSS: Maximizing Data Utility and Participant Privacy through Usable, Secure Data Workflows for Human-Centered AI Research REU Supplement	47.070	2232690	-	3,954
CICI: UCSS: Maximizing Data Utility and Participant Privacy through Usable, Secure Data Workflows for Human-Centered AI Research	47.070	2232690	45,759	161,588
CIF: Single-Particle Measurements of Soot and Incandescing Aerosol	47.050	2113160	-	77,917
CIF: Small: Deep Stochasticity for Private Collaborative Deep Learning	47.070	2215088	-	9,684
CIF: Small: Deep Stochasticity for Private Collaborative Deep Learning - REU Supplement	47.070	2215088	-	9,720

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
CNS Core: Small: PilotPC: Proactive Inverse Learning of Network Topology for Predictive Communication among Unmanned Vehicles	47.070	2204721	-	61,608
CNS Core: Small: PilotPC: Proactive Inverse Learning of Network Topology for Predictive Communication among Unmanned Vehicles - REU Supplement	47.070	2204721	-	6,456
Collaborative Proposal: Response of Mercury Cycling to Disturbance and Restoration of Low-Gradient Forested Watersheds	47.050	1852020	-	39,697
Collaborative Research: Advancing Chemical Separation Simulations: Computational Algorithms and Optimization with Implicit Adsorption Isotherms	47.049	2011902	-	66,365
Collaborative Research: Advancing Theoretical Understanding of Accelerated Nonlinear Solvers, with Applications to Fluids	47.049	2011490	-	27,741
Collaborative Research: ANSWERS: Impacts of Atmospheric Waves and Geomagnetic Disturbances on Quiet-Time and Storm-Time Space Weather	47.050	2149695	-	12,784
Collaborative Research: Branching in RNA Secondary Structures	47.049	1815832	-	1,113
Collaborative Research: CCRI: New: A Research News Recommender Infrastructure with Live Users for Algorithm and Interface Experimentation	47.070	2232552	-	70,330
Collaborative Research: CCRI: NEW: Building a Batteryless Computing Community through Access to Education, Testbeds, and Tools	47.070	2235002	-	34,105
Collaborative Research: CDS&E: Charge-Density Based ML Framework for Efficient Exploration and Property Predictions in the Large Phase Space of Concentrated Materials	47.049	2302763	-	116,053
Collaborative Research: CEDAR--Experimental and Theoretical Investigation of Midlatitude Ionospheric Instability	47.050	2012994	-	34,365
Collaborative Research: CEDAR--Experimental and Theoretical Investigation of Midlatitude Ionospheric Instability	47.050	2012994	-	12,543
Collaborative Research: CIF: Medium: Harnessing Intrinsic Dynamics for Inherently Privacy-preserving Decentralized Optimization	47.070	2106293	-	68,182
Collaborative Research: CISE-MSI: DP: CCF: SHF: MSI/HSI Research Capacity Building via Secure and Efficient Hardware Implementation of Cellular Computational Networks	47.070	2131070	-	30,831
Collaborative Research: CISE-MSI: DP: CCF: SHF: MSI/HSI Research Capacity Building via Secure and Efficient Hardware Implementation of Cellular Computational Networks	47.070	2131070	-	7,900
Collaborative Research: CISE-MSI: DP: CCF: SHF: MSI/HSI Research Capacity Building via Secure and Efficient Hardware Implementation of Cellular Computational Networks - Supplemental	47.070	2131070	-	5,512
Collaborative Research: CISE-MSI: DP: IIS RI: Research Capacity Expansion via Development of AI Based Algorithms for Optimal Management of Electric Vehicle Transactions with Grid	47.070	2318612	-	91,677
Collaborative Research: CNS Core: Small: Scalable, Flexible, and Dependable Architecture Design for Heterogeneous Internet of Things	47.070	2008049	-	69,232
Collaborative Research: Concentration Polarization Induced Electrokinetic Flows around Dielectric Surfaces	47.041	2127825	-	23,529

The accompanying notes are an integral part of this schedule.

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Clemson University
Schedule of Expenditures of Federal Awards
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Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Collaborative Research: CPS: Medium: Wildland Fire Observation, Management, and Evacuation using Intelligent Collaborative Flying and Ground Systems	47.070	2204445	54,592	183,112
Collaborative Research: CPS: Medium: Wildland Fire Observation, Management, and Evacuation using Intelligent Collaborative Flying and Ground Systems - REU Supplement	47.070	2204445	-	9,550
Collaborative Research: Creativity in Teams : Identifying the Role of Meetings in Fostering Effective Cognitive and Social Processes in Teams	47.075	1951298	22,196	60,704
Collaborative Research: CRISP Type 2: Coordinated, Behaviorally-Aware Recovery for Transportation and Power Disruptions (CBAR-tpd)	47.041	1822436	4,773	4,773
Collaborative Research: CSSI Frameworks/Software: Future proofing the finite element library deal.II - development and community building	47.041	2015848	-	215,491
Collaborative Research: CyberTraining: Implementation: Small: Inclusive Cyberinfrastructure and Machine Learning Training to Advance Water Science Research	47.070	2320979	3,280	5,001
Collaborative Research: CyberTraining: Implementation: Small: Inclusive Cyberinfrastructure and Machine Learning Training to Advance Water Science Research (REU Supplement)	47.070	2320979	-	2,800
Collaborative Research: Deconvolving the Southern South American Pleistocene-Holocene Dust Production Pathways	47.050	1911340	-	65,765
Collaborative Research: Development and Application of a Framework for Integrated Geodynamic Earth Models	47.050	1925575	-	150,656
Collaborative Research: Distributed Predictive Control of Cold Atmospheric Microplasma Jet Arrays for Materials Processing	47.041	2302219	-	121,885
Collaborative Research: Distributed Predictive Control of Cold Atmospheric Microplasma Jet Arrays for Materials Processing	47.041	2302219	-	26,296
Collaborative Research: DMREF: Accelerating Adoption of Sintering?Assisted Additive Manufacturing Using Integrated Experiments, Theory, Simulation and Data Science	47.049	2119833	-	91,877
Collaborative Research: Dynamic Data Analytics for the Power Grid via Koopman and PerronFrobenius Operators	47.041	2031573	-	113,009
Collaborative Research: EAGER: SaTC-EDU: Learning Platform and Education Curriculum for Artificial Intelligence-Driven Socially-Relevant Cybersecurity	47.076	2114920	-	48,322
Collaborative Research: ECO-CBET: Putting Entropy to Work: Leveraging the Role of Water Organization in Peptide Binding Events to Selectively Recover Rare Earths	47.041	2133512	-	2,637
Collaborative Research: Efficient Coupling of Multilevel Partial Differential Equation Solvers and Advanced Sampling Methods	47.049	2028346	-	324
Collaborative Research: Efficient Learning of Process-Structure-Property Models in Value-Driven Materials Design	47.041	1761136	-	712
Collaborative Research: Elements: SciMem: Enabling High Performance Multi-Scale Simulation on Big Memory Platforms	47.070	2103967	-	9,553
Collaborative Research: Elucidating the chemical plasticity of fine roots in response to soil heterogeneities and developing a better parameter to forecast fine root decomposition	47.074	1754679	-	19,730
Collaborative Research: Emergency Response in the Arctic (ERA): Investments for Global Capabilities and Local Benefits (Transfer from RPI)	47.041	2106726	56,208	76,924

The accompanying notes are an integral part of this schedule.

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Collaborative Research: Feasibility and Fundamentals of Femtosecond-Laser Shock Peening Without Protective Coating in Air Environment	47.041	1762581	-	(544)
Collaborative Research: HCC: Small: Robot-Rooms: Giving Form to Domestic Activity, On the Go	47.070	2221126	-	110,823
Collaborative Research: HCC: Small: Robot-Rooms: Giving Form to Domestic Activity, On the Go (REU Supplement)	47.070	2221126	-	8,000
Collaborative Research: High-Throughput Exploration of Microstructure-Sensitive Design for Steel Microstructure Optimization to Enhance its Corrosion Resistance in Concrete	47.041	2221098	-	51,692
Collaborative Research: Ideas Lab: The Role of Extracellular RNA in Intercellular and Interkingdom Communication	47.074	2243535	-	45,811
Collaborative Research: IMPLEMENTATION: EVOLVED - Embedding a Vision to Operationalize, Lift up, and Value Equity and Diversity in the Consortium of Aquatic Science Societies	47.074	2233789	-	65,107
Collaborative Research: Improved Geochronology-Based Sediment Provenance Analysis Through Physico-Mechanical Characterization of Zircon Transport	47.050	1946496	-	43,201
Collaborative Research: IRNC: Testbed: FAB: FABRIC Across Borders	47.070	2029260	(501)	101,728
Collaborative Research: Laboratory Data Enabled Phase Field Modeling and Data Assimilation for Coupled Two-Phase Fluid Flow and Porous Media Flow	47.049	2152623	-	22,879
Collaborative Research: Litter Arthropods of High Appalachia	47.074	1916263	-	92,217
Collaborative Research: MoDL: Graph-Optimized Cellular Connectionism via Artificial Neural Networks for Data-Driven Modeling and Optimization of Complex Systems	47.041	2234032	-	160,461
Collaborative Research: MRA: Scale, Space, and Time: A Unifying Approach to Aquatic Invasions	47.074	2017795	-	88,768
Collaborative Research: Network Cluster: Bedrock Controls on the Deep Critical Zone, Landscapes, and Ecosystems	47.050	2012227	-	51,529
Collaborative Research: Non-Ideal Majorana Fermions: A Practical Approach to Topological Quantum Computation	47.049	2014157	-	29,305
Collaborative Research: Plant-Inspired Growing Robots Operating in Multiple Time Scales	47.041	2312423	-	35,547
Collaborative Research: PM: High-Z Highly Charged Ions Probing Nuclear Charge Radii, QED, and the Standard Model	47.049	2309273	-	49,781
Collaborative Research: Practices and Research on Student Pathways in Education from Community College and Transfer Students in STEM (PROSPECT S-STEM)	47.076	2138066	2,379	22,596
Collaborative Research: Rational Design and Mechanistic Understanding of Carbon-Based Hybrid Nanostructures for Potent Microbicidal Function	47.049	2102021	-	66,573
Collaborative Research: Resource Collaborative for Immersive Technologies (RECITE)	47.076	2331453	-	30,799
Collaborative Research: Revolutionizing Electric Vehicle Education	47.076	2202134	-	153,471
Collaborative Research: Revolutionizing Electric Vehicle Education - REU Supplement	47.076	2202134	-	17,234
Collaborative Research: RI: Small: Motion Fields Understanding for Enhanced Long Range Imaging (REU Supplement)	47.070	2232298	-	750
Collaborative Research: RI: Small: Motion Fields Understanding for Enhanced Long-Range Imaging	47.070	2232298	-	45,553

The accompanying notes are an integral part of this schedule.

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Collaborative Research: SAI-R: Integrative Cyberinfrastructure for Enhancing and Accelerating Online Abuse Research	47.075	2228616	-	52,770
Collaborative Research: Semiparametric and Reinforcement Learning for Precision Medicine	47.049	2210658	-	22,480
Collaborative Research: SHF: Medium: Heterogeneous Architecture for Collaborative Machine Learning	47.070	2426318	-	23,677
Collaborative Research: SHF: Medium: Towards Harmonious Federated Intelligence in Heterogeneous Edge Computing via Data Migration	47.070	2312616	-	39,866
Collaborative Research: SHF: Small: Artificial Intelligence of Things (AIoT): Theory, Architecture, and Algorithms	47.070	2427316	-	49,722
Collaborative Research: SHF: Small: Efficient and Scalable Privacy-Preserving Neural Network Inference based on Ciphertext-Ciphertext Fully Homomorphic Encryption	47.070	2243052	-	34,937
Collaborative Research: Student Pathways in Engineering and Computing for Transfer Success	47.076	1834081	-	833,367
Collaborative Research: Superinvaders: Testing a General Hypothesis of Forest Invasions by Woody Species across the Americas	47.074	2331276	-	10,494
Collaborative Research: SWIFT: LARGE: AI-Enabled Spectrum Coexistence between Active Communications and Passive Radio Services: Fundamentals, Testbed and Data	47.070	2202972	-	77,151
Collaborative Research: Theoretical and Observational Investigations of Multi-Point Monin-Obukhov Similarity in the Convective Atmospheric Surface Layer	47.050	2054983	-	291,093
Collaborative Research: Unlocking the Evolutionary History of Schiedea (Carnation Family, Caryophyllaceae): Rapid Radiation of an Endemic Plant Genus in the Hawaiian Islands	47.074	2426560	-	9,359
COVID 19 - Collaborative Research: RAPID: Compounding Human and Natural Disasters: Implication on Agriculture Sectors	47.041	2030362	-	22,501
Comparative Biomechanics of Hawk Moths with Minute to Giant Proboscises and Diverse Feeding Habits	47.074	2042937	-	237,394
Computational Methods for Large Algebraic Eigenproblems with Special Structures	47.049	2111496	-	73,062
Conference: 2023 National Association of Plant Breeders (NAPB) Annual Meeting to be held July 16-20, 2023 (Greenville, SC)	47.074	2324719	-	19,155
Conference: CBMS Conference: Inverse Problems and Nonlinearity	47.049	2329399	-	19,839
Conference: Fifth International Conference on Quantitative Ethnography (ICQE23)	47.076	2308662	-	7,714
Conference: Fifth International Conference on Quantitative Ethnography (ICQE23)	47.076	2308662	-	36,054
Conference: Southeastern Analysis Meeting 39	47.049	2247845	-	10,283
Conference: Southeastern Number Theory Meetings	47.049	2302340	-	10,189
Conference: The Eleventh Annual Graduate Student Mini-Conference in Computational Mathematics	47.049	2349950	-	3,235
Control Theory, Qualitative Analysis, and Approximation of Coupled Structure-Flow Interaction Systems	47.049	2348312	-	26,187
Controlled Fragmentation of Polyolefinic Materials Triggered by Microwave Irradiation	47.083	2134564	-	171,357
CPS: DFG Joint: Medium: Collaborative Research: Perceptive Stochastic Coordination in Mass Platoons of Automated Vehicles	47.070	2302215	-	59,095
CRII: CNS: IoT-aware Federated On-Device Intelligence	47.070	2418308	-	16,780

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Designing Learning Technology Environments for Middle School Students to Analyze and Interpret Data Visualizations	47.076	2327465	-	109,353
Developing a Framework for Assessing Identity Development, Retention and Success of STEM Social and Behavioral Scientists (STEM-SBS): The Case of Sociology	47.076	2200695	130,424	269,503
D-ISN/Collaborative Research: Mitigating the Harm of Fentanyl through Holistic Demand/Supply Interventions and Equitable Resource Allocations	47.041	2240360	-	57,361
D-ISN: TRACK 1: Modeling Effective Network Disruptions for Human Trafficking	47.041	2039584	232,245	363,916
D-ISN: TRACK 1: Modeling Effective Network Disruptions for Human Trafficking REU Supplement	47.041	2039584	-	11,400
Domain Decomposition Methods for Coupled Models of Non-Newtonian Fluids and Solid Structures	47.049	2207971	-	80,646
Dynamic Wetting Effects in the Spectrum of the Sessile Drop: Organizing Principles from the Symmetry-Breaking Perspective	47.041	1935590	-	832
Dynamic Wetting Effects in the Spectrum of the Sessile Drop: Organizing Principles from the Symmetry-Breaking Perspective REU Supplement	47.041	1935590	-	8,000
EAGER: Collaborative Research: Building a Community of Mentors in Engineering Education Research Through Peer Review Training	47.041	2037807	-	9,052
EAGER: Experimental Investigation of Physical-Space Scalar Structure and Unresolved Mixing to Improve Large-Eddy Simulation of Turbulent Combustion	47.041	2208136	-	845
EAGER: Magnetically Induced Catalysts for Active and Selective CO2 Reduction under Mild Conditions	47.041	2146591	-	51,227
EAGER: Mechanistic and Stability Studies over Dual-Function Materials for CO2 Capture and Conversion	47.041	2327505	-	112,308
EAGER: Principles of Motor Skills (re)Learning When Using Powered Exoskeletons	47.041	2207515	6,152	4,893
EAGER: SaTC-EDU: Mathematically-Grounded Metaphors to Teach AI-Related Cybersecurity	47.076	2039616	-	6,398
EAGER-QAC-QSA: Quantum Algorithms for Correlated ElectronPhonon System	47.049	2038011	(12,176)	(12,176)
EAGERSitS: Quantifying the Value of Information for Sensor Placements to Improve Soil Signals for Agricultural Water Management	47.041	1841629	-	3,798
Early-Stage Clinical Trials with Patient Choice	47.041	2308750	-	63,086
Electrically Conductive 2D Metal-Organic Frameworks and Covalent Organic Frameworks Featuring Built-in Alternating pi-Donor/Acceptor Stacks with Efficient Charge Transport Capacity	47.049	2321365	-	13,995
Electrically Pumped, Spin Polarized Perovskite Laser Diodes Embodied Sensing and Control in Fish-like Swimming Robots via Passive Degrees of Freedom	47.041	2304364	-	311,198
Encrypted Control for Privacy Preserving and Securing Cyber-Physical Systems	47.041	2021612	-	127,394
Examining the Role of District Science Coordinator Professional Learning in Supporting and Retaining Science Teachers	47.041	1912702	-	187,622
Excellence in Research: Combustion of Bio-derived Isobutanol as an Emerging Fuel for Improved Fuel Efficiency and Economy	47.076	2150781	119,737	340,605
Explaining Choice, Persistence, and Attrition of Black Students in Electrical, Computer, and Mechanical Engineering	47.041	2349193	-	25,919
	47.041	1734347	2,000	14,681

The accompanying notes are an integral part of this schedule.

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Exploring and Solidifying Functional Calibration of Computer Models	47.083	2210686	-	32,966
COVID 19 - Exploring the Strategies Used by Two-year Colleges to Support Academic Continuity in STEM Education During the COVID-19 Crisis	47.076	2037809	10,426	63,353
FRR: Collaborative Research: Collaborative Learning for Multi-Robot Systems with Model-Enabled Privacy Protection and Safety Supervision	47.070	2219487	-	21,677
FW-HTF: Whole-body Exoskeletons for Advanced Vocational Enhancement (WEAVE)	47.075	2242610	905,026	990,736
FW-HTF-P: Adapting to the Future of Robotic Surgery: Understanding Training and Design Environments for Human-Robot Teams	47.041	2222806	-	71,967
FW-HTF-RL/Collaborative Research: The Future of Aviation Inspection: Artificial Intelligence and Mixed Reality as Agents of Transformation	47.041	2326185	-	117,498
FW-HTF-RL: Preparing the Future Workforce for the Era of Automated Vehicles	47.075	2041215	101,755	278,361
FW-HTF-RM: Collaborative Research: Future of Construction Work at the Human-Technology Frontier	47.070	1928527	-	60,706
FW-HTF-T/Collaborative Research: Occupational Exoskeletons and the Human-Technology Partnership: Achieving Scale and Integration into the Future of Work-GOAL/Collaborative Research: Control-Oriented Modeling and Predictive Control of High Efficiency Low-Emission Natural Gas Engines	47.041	2202862	447,993	775,339
GRFP - Arabella Rose Hunter	47.076	2302217	-	139,992
GRFP - Britney Hudson	47.076	2139915	-	56,804
GRFP - Cierra Sullivan	47.076	1744593 & 2139915	-	(28,383)
GRFP - Deyrel Diaz	47.076	2139915	-	59,506
GRFP - Haley Hostetter	47.076	2139915	-	39,656
GRFP - Megan Pitz	47.070	1744593 & 2139915	-	(12,225)
GRFP - Miranda Grice	47.041	1744593 & 2139915	-	(10,024)
GRFP - Stephanie Damas	47.076	2139915	-	53,513
GRFP - Stephanie Damas	47.070	1744593 & 2139915	-	(12,464)
Guest-Induced Electrical Conductivity and Photovoltaic Activity of Metal-Organic Frameworks	47.049	1809092	-	9,850
HCC: Small: Mitigating Online Risks: Designing Social VR to Prevent New Forms of Online Harassment	47.070	2112878	-	136,236
High Throughput Purification and Quantification of Bionanoparticles on Capillary-Channeled Fiber Stationary Phases	47.049	2107882	-	57,108
Inclusive Data Science Education for Rural Elementary Students: A Research Practice Partnership for Agile Learning	47.076	2031175	66,005	182,249
Interdisciplinary Workshop on Weather and Climate Extremes Investigating Family Science Habitus and Science Capital to Support the Language of Possibility Around Science	47.049	2231896	-	29,500
IRES: Track 1: Self-Healable Materials Development	47.076	2225149	-	108,412
IUCRC Phase II+ Clemson University: Advanced Mammalian Biomanufacturing Innovation Center (AMBIC)	47.079	1952528	-	109,928
IUCRC Phase II+ Clemson University: Advanced Mammalian Biomanufacturing Innovation Center (AMBIC)	47.041	2100442	-	97,063
IUSE/ PFE: RED: Clemson University: Learning Teams and Innovation Ventures for Adaptable Training in Engineering (CULTIVATE)	47.041	1730576	-	7,153
Large Scale Networking (LSN) Workshop on Operationalizing SDN	47.070	1747856	-	3,215
Lattice Reduction in Cryptography and Number Theory	47.049	2336000	-	71,737
Low Dimensional Transition Metal Oxyanion Multiferroics	47.049	2219129	14,535	116,829
LSAMP BD: Clemson University, LS SCAMP	47.076	2005030	-	467,731
Mathematics-Opportunities in Research and Education (MORE)	47.049	1902350	-	21,181

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
MCA: Problem-Based Learning for Warehousing and Order Fulfillment	47.076	2322250	-	38,462
Mesoscale Modeling of Controlled Degradation and Erosion of Polymer Networks on Abbreviation	47.049	2110309	-	88,453
Modeling and Measuring Critical Data Literacies in Informal Learning Environments	47.076	2024965	-	23,305
Modifying the Floral Microenvironment: Elevational Divergence in Floral Thermoregulatory Mechanisms	47.074	2015459	-	77,603
MRI: Development of Enodia: A Highly Reconfigurable, HPC-Backed Instrument Enabling Multifaceted Interactive Visualization	47.070	1828611	-	65,504
MTM2: Drivers of Functional Redundancy Across Microbiomes	47.074	2025541	-	31,647
MTM2: Drivers of Functional Redundancy Across Microbiomes	47.074	2025541	-	34,606
MTM2: Drivers of Functional Redundancy Across Microbiomes	47.074	2025541	-	315,625
Novel Microcantilever Sensor using Plasminically Enhanced Nonlinearity	47.041	1809891	-	20,437
NRI: FND: 3D Concrete Printing with Macro-Micro Robots	47.041	1924721	-	21,680
NRT: Technology-Human Integrated Knowledge Education and Research (THINKER)	47.076	1829008	-	722,222
NRT-AI: Harnessing AI for Inverse Design Training in Advanced and Sustainable Composites (IDEAS Composites)	47.076	2244342	-	34,659
NSF Engines Development Award: Advancing Clean Energy Technologies in the Piedmont Region to Generate Innovative New Economic Systems (NC, SC)	47.084	20230177-01-CLE	-	23,031
OAC Core: Redefining Efficient Mesh Processing with Dynamic Data Provisioning	47.070	2403022	-	3,620
Particle Electrokinetics in Non-Newtonian Microfluidics	47.041	2100772	-	52,774
Performance Guarantees for Electric Vehicle Fast Charging Station Management	47.041	2312196	-	92,559
PFI-RP: Design and Fabrication of Hardware-Based Security Platform Using Fabrication Variability of Ultra Low Power Memories	47.041	2204502	22,882	49,682
PFI-TT: A Non-Toxic, Biobased, and Recyclable Polyurethane for Foam-in-Place Packaging and Rigid Foam Insulation.	47.041	2122822	-	76,532
PFI-TT: High Performance Pressure Sensors for High Temperature Operations	47.084	2234512	-	58,437
PFI-TT: High Performance Pressure Sensors for High Temperature Operations	47.084	2234512	-	2,043
PHASE II IUCRC Clemson University: Center for Robots and Sensors for Human Well-Being	47.070	1939058	-	183,412
PIRE: Climate Resilient Sustainable Food Production: Controlled Environment Hydroponic Agriculture with Novel Wastewater Treatment & Reuse	47.079	2230696	-	474,770
Preparing High School Students with Autism for the Future of Remote Software Development Work	47.076	2148720	-	277,385
PROMISE: Postdoctoral Research Opportunities and Mentoring for Inclusive STEM Education	47.076	2329538	-	54,335
QuIC-TAQS: Voltage-Tunable Hybrid Microwave-Acoustic Interconnects for Multi-modal Quantum Memories	47.049	2137776	154,283	480,178
RAPID: A Comparison of Acute Heat Stress and Fish Abundance Influencing Coral Survival.	47.050	2347805	-	47,740
COVID 19 - RAPID: Aptamer-Linked Nano-Plasmon Sensor for Rapid Detection of SARS-CoV-2	47.041	2030828	(443)	(443)
Research Initiation: Improving Engineering Mechanics Self-Efficacy by Focusing on Abstracting the Physical World as a Precursor to Analysis	47.041	2306156	-	60,236

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
RET Site: Engaging and Enabling Teachers through Advanced Manufacturing Research	47.041	2206962	-	174,493
REU Site at Clemson, IMPRESS (IMPlanting the ResEarch Seed in Students)	47.049	2050042	-	60,479
REU Site: Nature's Machinery through the Prism of Physics, Biology, Chemistry and Engineering	47.074	1757658	-	11,946
REU Site: Nature's Machinery through the Prism of Physics, Biology, Chemistry and Engineering	47.076	2349368	-	90,885
REU Site: Research Experience for Undergraduates in Advanced Material Sciences	47.049	1950557	-	19,367
REU Supplement for 206-2015104 FW-HTF-T/Collaborative Research: Occupational Exoskeletons and the Human-Technology Partnership: Achieving Scale and Integration into the Future of Work	47.041	2202862	-	6,567
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Admin)	47.083	2242812	931,593	1,129,374
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (AI Core)	47.083	2242812	-	543,057
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Ethics)	47.083	2242812	-	109,482
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Gao)	47.083	2242812	-	114,347
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Project 1.2)	47.083	2242812	-	76,738
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Project 2.2)	47.083	2242812	-	27,032
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Project 2.3)	47.083	2242812	-	87,482
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Project 3.4)	47.083	2242812	-	56,886
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Thrust 1 Lead)	47.083	2242812	-	17,632
RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative Healthcare in South Carolina (Thrust 2 Lead)	47.083	2242812	-	30,996
RII Track-2 FEC: Advanced Biomanufacturing: Catalyzing Improved Host Development and High Quality Medicines through Genome to Phenome Predictions	47.083	1736123	-	2,843
RII Track--4: Controlling Point-Defect Energetics in Complex Oxides Via Interfacial Strain	47.083	2245128	-	19,557
RII Track-4: Experimentally-informed Mesoscale Modeling of Anisotropic Grain Boundary Solute Segregation in Nanocrystalline Alloys	47.083	2033327	-	37,082
RII Track-4: NSF: One-Stage Electrocatalytic CO2 Reduction by Using Captured (bi)Carbonate Ions as the Feedstock	47.083	2327308	-	138,266
RII Track-4: NSF: Coupling Magnetism and Photoluminescence in New Lanthanide Materials	47.083	2227933	-	117,302
RII-BEC: Bridging Collaboration Across South Carolina Academic Institutions to Support Underserved and Underrepresented Community Needs	47.083	2225816	-	71,060
RTG: Coding Theory, Cryptography, and Number Theory	47.049	1547399	-	4,016

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
SAI-P: Coupling Regional Economic Development with Transportation Planning for Sustainable Emerging Cities	47.075	2228555	-	104,187
SaTC: CORE: Medium: Collaborative: Cryptographic Provenance for Digital Publishing	47.070	1940679	-	26,413
SaTC: CORE: Small: Leveraging Physical Side-Channel Information to Build Detection-Based Rowhammer Defenses	47.070	2147217	-	46,674
SCC-PG : Human-AI Teaming for Flood Evacuation Decision Making	47.041	2125283	17,756	25,152
SCC-PG: Just in Time Intervention for Patients with Chronic Heart Diseases in Arizona Tribes	47.070	2213915	25,260	79,017
SCH: INT: Collaborative Research: An intelligent Pervasive Augmented reality therapy (iPAL) for Opioid Use Disorder and Recovery	47.070	2019389	-	89,102
SCH: INT: Collaborative Research: Crowd in Action: Human-Centric Privacy-preserving Multi-scale Data Analytics for Environmental Public Health	47.070	1949640	-	43,636
Self-Healable Thermoplastic Copolymers	47.049	2003005	-	278,981
Structure Regulation of Ionic Copolymers: Unlocking Ionic Clusters through Solvent Shear Adaptation, a Computational- Experimental Insight	47.049	1905407	-	86,905
Supplement for 206-2012036 CAREER: Empowering Students to be Adaptive Decision-Makers	47.041	1745347	-	24,898
COVID 19 - The Center for Aviation and Automotive Technological Education using ELearning: Providing E-Learning Resources and Increasing Knowledge about Their Effectiveness	47.076	2033801	337,929	988,028
The Center for Aviation and Automotive Technological Education using E-Learning: Providing E-Learning Resources and Increasing Knowledge about Their Effectiveness - REU Supplement	47.076	2033801	-	15,040
TRIAGE: Techniques for Resolving Intragroup Conflict to Advance Graduate Education	47.076	2325521	-	67,405
Uncertainty Principles in Reproducing Kernel Hilbert Spaces	47.049	2000236	-	35,823
Uncovering Fundamental Transport Principles in Novel, Ultraclean Lignin-Based Hydrogels for Bioseparations	47.041	1915787	-	16,232
Understanding Particle Scale Motion Initiation Physics for Loose-Laid Building Rooftop Aggregates in Severe Windstorms	47.041	1760999	-	40,552
Urbanization and Rural Land Rights Negotiations	47.075	1918352	-	64,838
Using Storytelling and a Justice Oriented STEM After-School Club as Critical Tools for Cultivating African American Youths' STEM Identities	47.076	2214740	113,178	415,241
Using Whiptail Lizards to Understand the Integration of Environmental and Host Genetic Effects on Host- Associated Microbiota	47.074	2105604	-	184,180
What leads to better outcomes in informal STEM-based environmental education programs for youth?	47.076	1906610	133,774	225,179
Pass-through programs from:				
American Society for Engineering Educati Engineering Fellows Postdoctoral Fellowship Program	47.041	769-2100	-	165,742
Arizona State Univ.				
FuSe-TG: STAMPEDE: Scalable Technology and Manufacturing of Photonics for Extreme information- Density	47.041	ASUB00001356	-	39,677

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Pass-through programs from:				
Benanova, INC				
Bioinspired Scalable Colloidal Materials for Improving Crop Productivity on the Path to Climate Smart Sustainable Agriculture	47.084	none	-	9,578
Benedict College				
CISE-MSI: DP: CPS: Statistical and Artificial Intelligence-Based Cyberattack Detection Models for Connected Vehicles	47.070	20-88162	-	20,525
Excellence in Research: Securing Machine Learning Against Adversarial Attacks for Connected and Autonomous Vehicles	47.083	20-88882-11410	-	84,442
Cornell Univ.				
RESEARCH - PGR: Functional Genomics of Beneficial Legume-Microbe Interactions	47.074	20-05	-	17,227
East Carolina University				
IUSE: EHR: Assessing Virtual Reality Field Experiences for Enhanced Learning in the Geosciences	47.076	A19-0220-S001	-	21,046
Furman University				
EAGER: Illuminating the Consequences of Membrane Association on Quantum-Based Magnetosensing	47.074	FU10268CU	-	36,030
Iowa State Univ.				
CPS: Medium: Data-driven Causality Mapping, System Identification and Dynamics Characterization for Future Power Grid	47.041	021700A	-	2,266
Mid-scale RI-1 (M1:DP): National Testing Facility for Enhancing Wind Resiliency of Infrastructure in Tornado-Downburst-Gust Front Events (NEWRITE)	47.083	028092D	-	28,426
Johns Hopkins University				
2020-16/20: Mechanistic-Informed Hybrid Models for CHO Fed-Batch and Perfusion Nutrient Control	47.041	2005435288	-	(4,637)
2021-21.23: Correlating Charge Variants and Redox State to Improve a Critical Product Quality Attribute	47.041	2005446113	-	47,939
2021-26: Deep Learning Framework for Training Set Reduction During Data-Driven Media Optimization	47.041	2005426019	-	83,100
2022-09: Model-Driven Metabolic Control in CHO Cell Perfusion Bioreactors	47.041	2005900211	-	57,143
IU2022-S2: Non-Invasive Classification and Selection of CHO Cells	47.041	2006015990	-	9,265
IUCRC Phase II+: Johns Hopkins University: Advanced Mammalian Biomanufacturing Innovation Center (AMBIC)	47.041	2005820961	-	67,054
Massachusetts Institute of Technology				
RINGS: Coding, High-Frequency and Antennas for Post-Quantum Security (CHAPS)	47.070	S6147 / PO # 999015	-	41,606
Montana State University				
MCA: Concept Mapping for Improved Technical Communication in Undergraduates (Commit-U)	47.076	G213-24-WA608	-	3,578
North Carolina Central University				
Excellence in Research: Unveiling the Potent Photo-Activated Antiviral Functions of Carbon Dots and Derived Hybrid Dots	47.049	A19-0037-S001 / P0108460	-	58,248

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Pass-through programs from:				
North Carolina State University				
STC: Science and Technologies for Phosphorus Sustainability (STEPS) Center	47.041	PAM-P20-000165-SA09	-	131,643
Northern Arizona University				
Collaborative Research: CCRI: New: Distributed Sensing & Computing Over Sparse Environments (DISCOVER) Platform	47.070	1004978-01	-	91,075
Piedmont Technical College				
Towards an Electric Vehicle Service Technology Certificate: Building Career Pathways by Implementing a Hybrid Curriculum in Electric Vehicle Technology	47.076	59123-01	-	15,470
Purdue Univ.				
Collaborative Research: Digitization TCN: Digitizing Collections to Trace Parasite-Host Associations and Predict the Spread of Vector-Borne Disease	47.074	10001564-004	-	2,683
Hazards Sees: Bridging Information, Uncertainty, and Decision-Making in Hurricanes using an Interdisciplinary Perspective	47.050	10000900-008	-	(787)
Research: Collaborative Research: Sustaining and Scaling the Impact of the MIDFIELD Project at the American Society for Engineering Education	47.041	10001998-023	-	56,013
SC State Univ.				
Building an MMA Research and Education Partnership that Creates Pathways to Astronomy Careers from Two HBCUs	47.049	24-586033-BAPS-CU-SC/ PO # P2401137	-	292
Tennessee Tech University				
CC* Integration-Large: Prototyping a Secure Distributed Distributed Storage Infrastructure Accelerating Big Science	47.070	BL149555823	-	59,499
The Citadel				
MCA - Exploring Algal Carbon Capture Potential in High pH Laboratory and Field-Scale Systems	47.050	321307-01-00/2219258	-	73,380
The University of Memphis				
Exploring Coupled Physical, Biological and Chemical Processes that Control Lead Fate and Transport through Plastic Plumbing Materials	47.041	A21-0043-S001 / P0293416	-	(325)
Univ. of Arkansas				
RII Track-2 FEC: Membrane Purification Platform for Continuous Biomanufacturing of Viral Vectors and Virus-like...	47.083	UA2023-337 / SPC-006458	-	376,088
Univ. of Georgia				
Science Coordinators Advancing a Framework for Outstanding Leadership Development (SCAFFOLD)	47.076	SUB00002448	-	66,310
Univ. of Kentucky				
RII Track-2 FEC: A Multiscale, Multiphysics Modeling Framework for Genome-to-Phenome Mapping via Intermediate Phenotypes	47.070	3200002098-19-053 / PO 7800004458	-	77,931
Univ. of Miami				
AccelNet-Implementation: Broadening Carbon Ring	47.079	OS00001451/SPC-003487	-	12,121

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Pass-through programs from:				
Univ. of Missouri - Columbia				
CAREER: An Investigation of Microplastics Fate and Contaminant Transport in Storm Runoff, The Nexus of Environmental Engineering and Material Sciences	47.041	C00081534-1	-	208
Univ. of NC - Chapel Hill				
FABRIC: Adaptive Programmable Research Infrastructure for Computer Science and Science Applications	47.070	5115814	-	45,324
Research Infrastructure: FABRIC Operations - Accelerating Innovation and Research	47.070	5130271	-	91,029
Univ. of Nebraska - Lincoln				
Achieving Critical Transformations in Undergraduate Programs in Mathematics (ACT UP Math)	47.076	25-0536-0059-005	-	30,404
Univ. of Notre Dame				
Analysis, Design and System-Level Performance of Repairable Concrete Buckling-Restrained Braced Frames Under Seismic Loads	47.041	204667CU / P2116059	-	85,545
SII-Center: SpectrumX - An NSF Spectrum Innovation Center	47.049	204303CU / P2126491	-	101,602
Univ. of South Carolina				
CCI Phase I: NSF Center for Polymers for a Circular Economy (PCE)	47.049	24-5533 PO 2000072668/USC 10013367	-	60,114
NSF Engines Development Award: Advancing Cyber Security Technologies for the Maritime System (SC) PO 2000070086 / USC 10012994	47.084	23-5359 PO#2000070086/USC 10012994	-	18,913
RII Track 1: Materials Assembly and Design Excellence in South Carolina: MADE in SC	47.083	18-3494 22000-FB02/PO#2000036759	-	203,521
RII Track 2 FEC: Enabling Factory to Factory (F2F) Networking for Future Manufacturing	47.083	23-5089 PO # 2000066632/ USC 10011427	-	8,177
Univ. of Utah				
CloudLab Phase III: Expanding the Frontiers of Cloud Through World-Class Community Infrastructure	47.070	10056678-Clemson / PO U000284314	4,684	309,305
EAGER: Understanding Complex Wind-Driven Wildfire Propagation Patterns with a Dynamical Systems Approach	47.041	10069307-01-CLEM/ PO U000464658	-	2,699
Univ. of Vermont				
EAGER: International Type II: A Team Science Examination of Virtual, Hybrid, and In-Person Strategies for Strengthening International Collaboration on Agritourism Research	47.079	AWD00000448SUB00000202 / PO# 194503	-	6,966
University at Buffalo				
NSF Convergence Accelerator Track F: Online Deception Awareness and Resilience Training (DART)	47.084	R1328417	-	178,772
University of Rhode Island				
CYPHER: CISE-CCF-SHF: Introducing a New In-Sensor Computing Architecture for Intelligent 3-D Imaging Systems	47.070	9156/012324	-	33,528
SaTC: CORE: Medium: Introducing DIVOT: A Novel Architecture for Runtime Anti-Probing/Tampering on I/O Buses	47.070	8569/062823 / PO# 0000201844	-	248,454

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
National Science Foundation, continued				
Pass-through programs from:				
University of Toledo				
PFI TT: A Hand-Held Device for Rapid and Accurate Determination of Cancerous Tumor Margins During Surgical Resections	47.041	F-2023-3	-	21,138
Virginia Polytechnic Institute				
Establishing a Design Framework for Multi-Functional Composites by Leveraging Kirigami Cutting, Multi-Stability, and Multi-Level Optimization	47.041	480991-19244	-	14,662
LEAP-HI: Safety and Learning from Errors and Near Misses in the Human-Automation Interaction of Socio-Technical Infrastructure Systems	47.041	480665-19244	-	84,891
Learning Environments with Augmentation and Robotics for Next-gen Emergency Responders (LEARNER)	47.083	419355-19244	14,863	61,319
NRI: INT: Collaborative Research: A Robotic Platform for Body-Scale Human Physical Interaction Simulation in Embodied Virtual Reality	47.041	480463-19244	-	98,985
Winston Salem State Univ.				
ExpandQISE: Track 2: Expanding Quantum Research and Education at Winston-Salem State University with Research on Hybrid Microwave-Optical Quantum Devices	47.049	211492 A	-	25,214
Total National Science Foundation			3,998,324	30,035,236
Veterans Affairs				
The Health and Mental Health Needs of Rural Veterans and Their Families	64.000	36C24823C0001 PO# 573-C42092	-	58,722
Total Veterans Affairs			-	58,722
Environmental Protection Agency				
Development of a Multi-scale Management Tool for Predicting and Mitigating HABs in Ohio River Watersheds				
FY23-24 Clemson University Products	66.509	83926902	-	11,426
Pollution Prevention Grant Program	66.708	84070501	24,831	70,857
Pollution Prevention Grants Program	66.708	02D35822	-	89,509
Pollution Prevention Incentives States	66.708	NP-01D16320	-	11,870
	66.708	00D84518	-	2,400
Pass-through programs from:				
Garver, LLC				
Technologies and Approaches to Minimize Brominated and Iodinated DBPs in Distribution Systems	66.511	Garver 21W20070; WRF# 5122	-	118,683
Medical Univ. of SC				
Developing an Integrated Framework for Evaluating Toxicity of Real-Life Chemical Mixtures	66.509	A23-0054-S001	-	128,371
Michigan State Univ.				
Winning the Race Against Competing Risks: Optimizing Drinking Water Disinfection to Minimize Opportunistic Pathogen & DBP Risks	66.511	RC115533CU	-	111,532
S.S. Papadopulos & Associates, Inc.				
Laboratory Evaluation of Bioremediation for Groundwater at the Lane Street Superfund Site	66.000	none	-	90,123
Total Environmental Protection Agency			24,831	634,772

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Nuclear Regulatory Commission				
Coupling Life-Cycle Impact Assessment and Risk Assessment for Sustainability-Informed Decision Making	77.008	31310022M0004	-	119,063
Nuclear Faculty Development at Clemson University	77.008	31310018M0037	-	(1,629)
Tenure-Track Junior Faculty Position in Actinide Chemistry at Clemson University	77.008	31310022M0029	-	56,942
U.S. NRC Fellowship Education Grant at Clemson University	77.008	31310022M0006	-	81,906
Total Nuclear Regulatory Commission			-	256,283
Department of Energy				
Accelerated Discovery of Protection System and Laser Processing of Protective Coatings on CMC for Hydrogen Turbines	81.089	DE-FE0032231	157,301	399,435
Additive Manufacturing of Circumferentially Embedded Optical Probe Modules for In Situ Monitoring of Coal-Fueled Steam Turbines	81.089	DE-FE0031826	-	141,396
All-digital Sensor System for Distributed Downhole Pressure Monitoring in Unconventional Fields	81.089	DE-FE0031781	153,104	326,340
An Entirely Wood Floor System Designed for Biogenic Carbon Storage, Adaptability, and End of Life De/Re/Construction	81.135	DE-AR0001640	-	(2,740)
An Entirely Wood Floor System Designed for Biogenic Carbon Storage, Adaptability, and End of Life De/Re/Construction	81.135	DE-AR0001640	-	468,483
An Inverse Design Methodology to Fabricate Low-Cost Agile Tools for Manufacturing Lightweight Automotive Components	81.086	DE-EE0010203	93,434	132,292
Analog Quantum Simulation for Solid-State Spectroscopies	81.049	DE-SC0022874	-	55,900
Artificially Intelligent Manufacturing Paradigm for Composites (AIM for Composites)	81.049	DE-SC0023389	817,813	1,643,325
Artificially Intelligent Manufacturing Paradigm for Composites (AIM for Composites) - New Project is the Participant Support Funds for 2025738	81.049	DE-SC0023389	-	30,545
Artificially Intelligent Manufacturing Paradigm for Composites (AIM for Composites) (Main PI - Pilla)	81.049	DE-SC0023389	-	23,743
Assessment after Engagement, Education & Experimental-Learning (A-EEE)	81.121	DE-NE0009333	307,595	379,383
CFA-22-26530 Quantifying Aerosol Deposition Mechanisms in Model Dry Cask Storage Systems	81.121	DE-NE0009276	-	177,418
CFA-23-29761 MXene as Sorbent Materials for Off-Gas Radioiodine Capture and Immobilization	81.121	DE-NE0009414	54,441	85,656
Combined Field and Laboratory Studies of Plutonium Aging and Environmental Transport	81.112	DE-NA0004095	-	141,420
Community Collaboration for Counselors (CCC): Increasing School-Based Mental Health Support	81.184	S184X220019	-	553,678
Composition-Aware Microstructure Evolution and Strength Models for Irradiated Ferritic Steel for Fusion Applications	81.490	DE-SC0024515	-	89,209
Crystal Growth and Quantum Phases of Frustrated Rare Earth Oxides	81.049	DE-SC0020071	-	51,088
Developing a Thermochemical Database of Radionuclide Reactions at the Mineral-Water Interface for Improved Nuclear Waste Repository Performance Assessment	81.121	DE-NE0008940	-	144,884
Discerning Influences from Enthalpy and Entropy at Aqueous Interfaces Involved in Biomass Conversions in Porous Catalysts	81.049	DE-SC0021170	-	16,047
Electrocatalytically Upgrading Methane to Benzene in a Highly Compacted Microchannel Protonic Ceramic Membrane Reactor	81.089	DE-FE0031871	800	330,825
Electrochemical Hydrogen Isotope Fractionation - Fundamental Insights Leading to Process Scale Up	81.049	DE-SC0022190	-	17,301

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Energy, continued				
EM-Enhanced HyPor Loop for Fast Fusion Fuel Cycle Enabling Partnership between South Carolina and NREL for Advancing Opportunities in Plastics Recycling Research (EPSCOR for Plastics Recycling)	81.135	DE-AR0001376	57,349	214,086
Fundamental Understanding of Thermal Gradients and Stress States on Mass Transport in Fusion Materials	81.049	DE-SC0021367	-	40,040
High Speed Medium Voltage CHP System with Advanced Grid Support	81.049	DE-SC0023385	-	176,302
How do wildfire severity and post-fire precipitation influence fate and transport of pyrogenic organic carbon and nitrogen in terrestrial-aquatic interfaces?	81.086	DE-EE0008409	123,438	295,844
Human Factors and Technologies Design to Improve User Acceptance of Pooled Rideshare (PR) for Increasing Transportation System Energy Efficiency	81.049	DE-SC0023311	-	210,144
Improving Models of Stand and Watershed Carbon and Water Fluxes with More Accurate Representations of Soil-Plant-Water Dynamics in Southern Pine Ecosystems	81.086	DE-EE0009205	6,236	245,215
Improving the Sensitivity and Precision for Plutonium Isotope Ratio Measurements by Thermal Ionization Mass Spectrometry Using a Novel Polymer Fiber	81.049	DE-SC0023310	-	110,063
IONIC - DIPOLAR INTERACTIONS IN POLY(IONIC LIQUIDS)	81.112	DE-NA0004096	-	148,059
Ionic Polymers Under Dynamic Conditions	81.049	DE-SC0019284	-	11,052
Lignin Fractionation and Valorization: Focusing on both Value and Quality	81.087	DE-EE0008502	-	(329)
Manufacturing Demonstration of a Large-Scale, Multi-Material Passenger Vehicle Sub-System	81.086	DE-EE0009656	452,144	569,428
Megawatt Scale, Multi-Source Heat Recovery System with a Flexible Grid Interconnect	81.086	DE-EE0009423	238,964	270,873
Optimizing Melt Processed Phosphate Glass Waste Forms via Composition-Property-Structure Correlations	81.121	DE-NE0008939	-	19,077
Phosphate Mineral and Glass Waste Forms for Advanced Immobilization of Chloride- and Fluoride-based Waste Streams	81.121	DE-NE0009196	-	99,523
Process Intensification Scale-Up of Direct Lit Electrolysis	81.135	DE-AR0001375	-	47,142
Quantifying Radionuclide Sorption to Engineered Barrier Materials under Elevated Temperature and Ionic Strength Conditions	81.121	DE-NE0008941	-	25,499
Rapid, Non-Radioactive Methods for Prediction and Quantification of Radiolytic Radical Decomposition Products in Nuclear Separations	81.121	DE-NE0009195	-	85,824
Redox Cycles of Novel High-Entropy Perovskite Oxides for Clean Fuel Production through Solar Thermochemical Water and Carbon Dioxide Splitting	81.049	DE-SC0023407	-	165,394
Robust in Situ Strain Measurements to Monitor Carbon Dioxide (CO2) Storage	81.089	DE-FE0028292	-	(26)
Sampling Rare Events In Aqueous Systems Using Molecular Simulations	81.049	DE-SC0015448	-	(305)
Self-healable Copolymer Composites for Extended Service of H2 Dispensing Hoses	81.087	DE-EE0008827	-	1,016
Test and Validate Distributed Coaxial Cable Sensors for in situ Condition Monitoring of Coal-Fired Boiler Tubes	81.089	DE-FE0031765	299,363	850,902
The 3P Program: Phenotyping x Prediction = Productivity	81.135	DE-AR0001134	-	(4,725)
Understanding Twinning and Deformation in High Entropy Alloys	81.049	DE-SC0023232	-	28,991
University Nuclear Leadership Program: Scholarship and Fellowship Support	81.121	DE-NE0009240	-	55,513

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Energy, continued				
Pass-through programs from:				
Achates Power, Inc.				
New Two-Cylinder Prototype Demonstration and Concept Design of a Next Generation Class 3-6 Opposed Piston Engine	81.086	Prime DE-EE0009202	-	(364)
Opposed-Piston 2-Stroke Hybrid Commercial Vehicle System	81.086	Prime DE- EE0009880	-	241,095
Applied Engineering Concepts, Inc IdentiPHYber	81.049	IdentiPHYber-23-0001	-	7,999
Argonne National Laboratory Asynchronous Multi-Level I/O Techniques to Cache and Consolidate Checkpoints At Scale	81.000	2F-60270	-	7,253
Battelle Energy Alliance, LLC Machine Learning-Assisted Alloy Design for Improving Void Swelling Resistance of Reactor Materials	81.121	298236	-	92,123
Benedict College Edge-Centric Cloud-Based Distributed Surveillance for Environmental Detection Surveys	81.000	20-82001-54040	-	52,421
Case Western Reserve University From Structured Solvents to Hybrid Materials for Chemically Selective Separations of CO2: Mechanisms, Stability and Interfaces	81.049	RES516683	-	30,846
Detroit Diesel Corporation Thermal Barrier Coatings for Improving Thermal Efficiency of a Heavy-Duty Engine	81.086	PO#1-1590027724//PO#2-1590029839// PO#3-1590030886//PO#4-1590032107// PO#5-1590033375	-	20
Georgia Institute of Technology Demonstration of a 5 MVA Modular Controllable Transformer for a Resilient and Controllable Grid	81.122	AWD-103072-G1 / PO 5058541	-	220,033
Handix Scientific LLC A Microfluidic Ice Nucleating Particle Counter for Continuous Measurements	81.049	1801 // Prime # DE-SC0018474	-	(2,387)
Natl Tech & Engin Solutions of Sandia Adaptive Protection and Control for High Penetration PV and Grid Resilience	81.087	2143420	-	2,989
Oak Ridge National Laboratory Go! Program: Controlling Quantum Interactions at Interfaces Over Low Dimensional Materials for Photocatalytic Reactions	81.000	PO# 4000192727 (Old PO = 4000171652) (Basic O#4200000754	-	12,680
Microextraction Sample Preparation Technique for Elemental and Isotopic Analysis	81.000	4000192717/ old 4000185303	-	199,556
Semplastics EHC LLC Coal-Waste-Enhanced Filaments for Additive Manufacturing of High-Temperature Plastics and Ceramic Composites	81.089	3D-2022-01	-	33,821
High Strength, Encapsulated, Commercially Useful Components and Particles Made from Coal Combustion Residuals	81.089	CCR-2020-01	-	34,580

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Energy, continued				
Pass-through programs from:				
Solution Spray Technologies, LLC				
Novel Thermal Barrier Coatings for Gasoline Spark Ignition Engines Phase II Funding	81.049	none	-	(6,543)
The University of Chicago				
EFRC Catalyst Design for Decarbonization Center (CD4DC)	81.049	AWD103461 (SUB00000768)	-	34,489
Tufts University				
Transmission Expansion Planning Models for Offshore Wind Energy	81.087	104045 / PO# EP0219630	-	33,632
Univ. of California, Riverside				
Understanding the Impact of Pollution Aerosol from Los Angeles/Long Beach on Clouds and Radiation in and Upwind of the EPCAPE Study Domain	81.049	S-001593	-	97,229
Univ. of Connecticut				
Effect of Multiple Uranium Complexes on Chloride Fast Reactor Molten Properties	81.121	179896019 / KFS# 5685900 / PO# 17917896019	-	5,857
Univ. of Florida				
Consortium for Nuclear Forensics (CNF)	81.113	SUB00003923	-	181,122
Univ. of Michigan				
Chemical Partitioning and Radiation Damage in Concentrated Alloys	81.049	SUBK00016769 / PO# 3008130390	-	72,336
Univ. of Minnesota				
Energy Frontier Research Center for Inorganometallic Catalyst Design	81.049	A004527501	-	341
Center for Programmable Energy Catalysis (CPEC)	81.049	A010469801	-	25,449
Univ. of NC - Charlotte				
Resilient Community Microgrids with Dynamic Reconfiguration to Serve Critical Loads in the Aftermath of Severe Events	81.087	20200875-02-CLE	-	92,536
Univ. of NC - Greensboro				
How does mercury methylation respond to intensive forest management and the creation of anoxia in floodplain soils?	81.049	21200543	-	5,157
Univ. of South Carolina				
Center for Hierarchical Waste Form Materials (CHWM)	81.049	17-3256/USC#13020-FC78/ PO#2000030148	-	384,704
Univ. of Tennessee				
Ultra-Light Tightly-Integrated Modular Aviation-Transportation Enabling Solid-State Circuit Breaker (ULTIMATE-SSCB)	81.135	A21-1349-S002	-	56
Univ. of Texas at San Antonio				
Cybersecurity for Manufacturing Innovation Institute (CyManII) Budget Period 3	81.089	1000003894	-	82,448
Univ. of Utah				
Enhanced Geothermal System Concept Testing and Development at the Milford City, Utah Forge Site	81.087	10039612-Clemson-3-2514-AF1	-	743,188

The accompanying notes are an integral part of this schedule.

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Clemson University
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Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Energy, continued				
Pass-through programs from:				
Univ. of Wisconsin - Madison				
Triad National Security Advanced Manufacturing of High-Alloys as Cost-Effective Plasma Facing Components for Fusion Power Generation.	81.135	000002743	-	75,271
Winston Salem State Univ.				
Training a Diverse Quantum Workforce in Carolinas through Establishing the Winston-Salem Quantum Education Collaboratory (WS-QEC)	81.049	211469A	-	119,226
Total Department of Energy			<u>2,761,982</u>	<u>11,848,872</u>
Department of Education				
Building Capacity for Early Language Learners: Bridges Between Reading Recovery and ESOL	84.365	T365Z220099	-	507,970
Co-DREAM OER (Collaborative Development of Robotics Education and Advanced Manufacturing Open Educational Resources)	84.116	P116T210023	35,093	477,730
CU-PREPARES: Preparing Rural Educators for Priority Areas through Residency Expansion	84.336	S336S230009	-	92,682
Developing a Sentence Writing Intervention for Young Struggling Writers	84.324	R324B200016	-	71,032
Engineers for a Global System: Global Learning and Engineering+Language Programs (at Clemson University)	84.016	P016A200057	-	11,980
English Learner Instruction: Building Capacity Through Design	84.365	T365Z210089	-	450,435
GAANN: Molecular Engineering in Sustainability and Health	84.200	P200A210105	-	233,686
GAANN: Rational Access for Needy Underrepresented Graduate Engineering Fellows in Mechanical Engineering (RANGE Fellows in ME)	84.200	P200A220075	-	204,641
STEM Teacher Learning Progression (CU-TLP)	84.423	S423A200008	-	363,652
Pass-through programs from:				
Lexington Technology Center				
Lexington Technology Center 2019-2020 Faculty Professional Development	84.000	2019-2020	-	(915)
SC Commission on Higher Education				
COVID-19 - American Rescue Plan - Elementary and Secondary School Emergency Relief (ARP ESSER)- Addressing Student Learning Loss in Secondary ELA and Science	84.425U	H63010497523	-	145,410
SC Dept. of Education				
24ClemsonAgEd	84.048	H63010107124	-	6,239
Univ. of Virginia				
Build the FRaME: Using Feedback, Reflection, and Multimedia to Teach Evidence-Based Practices for Effective Classroom Management	84.324	GR016492.SUB00000367	-	108,204
Total Department of Education			<u>35,093</u>	<u>2,672,746</u>
National Historical Publications and Records Grants				
Wichoooyake kin agli - They Bring the Stories Back: Connecting Lakota Wild West Performers to Pine Ridge Community	89.003	PL-103356-22	31,583	67,641
Total National Historical Publications and Records Grants			<u>31,583</u>	<u>67,641</u>

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services				
A Peer Recovery Coaching Intervention for Hospitalized Alcohol Use Disorder Patients	93.273	1R01AA030815-01A1	-	87,094
Acquisition of the Agilent Cytation C10 Confocal Imaging Reader for Enhancing Biomedical Research Excellence at Clemson University	93.859	3P20GM146584-02S1	-	275,024
Administrative Supplement to Support Summer Undergraduate Research for the Parent MIRA Award R35 GM141891 "Mechanistic Pharmacodynamic Modeling for Drug Combinations"	93.859	3R35GM141891-03S1	-	9,913
Administrative Supplements to Support Undergraduate Summer Research Experiences - Inhibition of Human Islet Amyloid Polypeptide Aggregation	93.859	3R35GM145409-01S1	-	10,068
Advanced Nursing Education Workforce (ANEW)	93.247	5T94HP32896-04-00	10,876	49,589
Approaches for Genetic Manipulation of Naegleria Fowleri	93.855	1R21AI175463-01	-	141,193
Arsenic's Effects on the Intestinal Stem Cell Niche	93.113	1R15ES031766-01A1	-	106,069
Assessing Cognitive and Psychosocial Mechanisms of Useful Field of View Cognitive Training using Ecological Momentary Assessment	93.866	7R21AG060216-03	1,072	1,072
ATTRACT: Assessment of Temporomandibular Joint Morphology, Mechanics, and Mechanobiology in Class II and III Target and Surgical Phenotypes	93.121	5U01DE031512-03	8,396	294,840
ATTRACT: Assessment of Temporomandibular Joint Morphology, Mechanics, and Mechanobiology in Class II and III Target and Surgical Phenotypes	93.121	5U01DE031512-02	90,158	365,958
Building the Evidence Base for Vomit Clean-Up Procedures in Long-Term Care Facilities	93.226	5R01HS025987-03	-	3,280
Call Me Doctor ESTEEMED Scholars Program at Clemson University	93.286	5R25EB033076-02	-	168,129
Capillary-Channeled Polymers Fibers and Films - A Platform Technology for Exosome Isolation and Analytics	93.859	1R01GM141347-01A1	-	226,083
Capillary-Channeled Polymers Fibers and Films - A Platform Technology for Exosome Isolation and Analytics	93.859	3R01GM141347-02S1	-	210,000
Capillary-Channeled Polymers Fibers and Films - A Platform Technology for Exosome Isolation and Analytics	93.859	3R01GM141347-02S2	-	7,689
CDC-HOP Supplemental Project - Childhood Obesity Prevention	93.319	5 NU58DP006562-05-00	-	57,584
Cell and Matrix Interactions in Diabetic Vascular Tissue Engineering Models	93.839	5R01HL133303-04	-	119,296
Cell Tracking in Low-Frame-Rate Video Based on Displacement Prediction	93.859	1R21GM150066-01	-	55,888
CHG COBRE in Human Genetics - Year 4 Supplement - Fiddler	93.859	3P20GM139769-04S1	-	53,608
CHG-COBRE in Human Genetics-Year 4 Admin Core	93.859	5P20GM139769-04	13,085	94,378
CHG-COBRE in Human Genetics-Year 4 Pilot (Farrell)	93.859	5P20GM139769-04	-	10,668
CHG-COBRE in Human Genetics-Year 4 Pilot (Gopalan)	93.859	5P20GM139769-04	-	30,996
CHG-COBRE in Human Genetics-Year 4 Pilot (Liu)	93.859	5P20GM139769-03	-	53,143
CHG-COBRE in Human Genetics-Year 4 Pilot (Witt Dillon)	93.859	5P20GM139769-04	-	22,564
CHG-COBRE in Human Genetics-Year 4 Research (Alexandrov)	93.859	5P20GM139769-04	-	112,495
CHG-COBRE in Human Genetics-Year 4 Research (Konkel)	93.859	5P20GM139769-04	-	99,761
CHG-COBRE in Human Genetics-Year 4 Research (Masino)	93.859	5P20GM139769-04	-	55,031
CHG-COBRE in Human Genetics-Year 4 Research Core	93.859	5P20GM139769-04	-	244,881
CHG-COBRE in Human Genetics-Year 4 Research GGC (Arno)	93.859	5P20GM139769-04	12,407	18,921
Clemson University Healthy Options Program	93.319	1 NU58DP007331-01-00	-	337,816
COBRE Human Genetics - Duren	93.859	5P20GM139769-02	-	(4,849)
COBRE Human Genetics - YR 3 Admin Core	93.859	5P20GM139769-03	39,225	186,636
COBRE Human Genetics - YR 3 Pilot - Larsen	93.859	5P20GM139769-03	-	48,743
COBRE Human Genetics - YR 3 Pilot - Li	93.859	5P20GM139769-03	-	58,296
COBRE Human Genetics - YR 3 Pilot - Liu	93.859	5P20GM139769-03	-	49,227
COBRE Human Genetics - YR 3 Pilot - Wang	93.859	5P20GM139769-03	7,562	70,140

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
COBRE Human Genetics - YR 3 Research Core	93.859	5P20GM139769-03	-	455,465
COBRE Human Genetics - YR 3 Target - Duren	93.859	5P20GM139769-03	-	72,230
COBRE Human Genetics - YR 3 Target - Konkel	93.859	5P20GM139769-03	-	170,049
COBRE Human Genetics - YR 3 Target-Alexandrov	93.859	5P20GM139769-03	-	186,115
COBRE Human Genetics - YR 3 Target-Flanagan-Steet	93.859	5P20GM139769-03	141,985	141,985
COBRE Human Genetics - YR2 Research Core	93.859	5P20GM139769-02 REVISED	-	2
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - Admin Core Year 2	93.859	5P20GM146584-02	-	310,339
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - Pilot Year 2 (James Lewis)	93.859	5P20GM146584-02	-	31,996
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - RES Core - CLIF - Year 2	93.859	5P20GM146584-02	-	270,583
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - RES Core - CUGBF - Year 2	93.859	5P20GM146584-02	-	439,694
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - RES Project # 1 - Seekatz - Year 2	93.859	5P20GM146584-02	-	177,208
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - RES Project # 2 - Dhingra - Year 2	93.859	5P20GM146584-02	-	208,500
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - RES Project # 3 - Stamatikos - Year 2	93.859	5P20GM146584-02	-	276,015
COBRE: Eukaryotic Pathogens Innovation Center (EPIC) - RES Project # 4 - Whitehead - Year 2	93.859	5P20GM146584-02	-	205,583
COBRE:EPIC-YR5 L Kozuboswki	93.859	5P20GM109094-05	-	(650)
Critical Functions of the Gut Microbiota that Mediate Recovery from Recurrent Clostridium Difficile Infection	93.847	5K01DK111794-05	-	6,470
CYP2B6 Inhibits Proper Distribution of Lipids Leading to Obesity and Fatty Liver Disease	93.113	2R15ES017321-04	-	70,747
Daily Memory Lapses and Sympathetic-Cardiovascular Dysfunction: Pathways to Prevention of Alzheimer's Disease and Related Dementias (ADRD)	93.866	1R03AG083323-01	-	146,259
Data-Driven Approaches for Opioid Use Disorder Treatment, Recovery, and Overdose Prevention in Rural Communities via Mobile Health Clinics and Peer Support Services	93.279	1R61DA059892-01	76,883	179,159
Deciphering Macrophage Versus Neutrophil Signaling and Effector Functions in Immune Responses in Vivo	93.859	3R35GM147464-02S1	-	31,837
Deciphering Macrophage Versus Neutrophil Signaling and Effector Functions in Immune Responses in Vivo	93.859	1R35GM147464-03	-	376,268
Defining Mechanisms of Fungal-Bacterial Interactions During Infection	93.855	1K22AI174009-01	-	37,357
Delphi and Associated Resources: Maintenance and Further Development; Administrative Supplements to Support Undergraduate Summer Research Experiences	93.859	3R01GM093937-11S1	-	3,538
DelPhi and Associated Resources: Maintenance, Development, and Applications	93.859	1R35GM151964-01	-	97,290
COVID 19 - Developing a Dynamic Modeling Framework for Surveillance, Prediction, and Real-Time Resource Allocation to Reduce Health Disparities During Covid-19 and Future Pandemics	93.879	1R01LM014193-01A1	181,552	573,349
Developing an in Vivo Toolbox to Interrogate the Intracellular Trafficking and Killing of Aspergillus Spores	93.855	5R21AI164363-02	-	198,243
Development of a Multiplexed Assay in Kinetoplastid Parasites to Identify Probes for Glycolysis	93.855	5R01AI156382-03	504,894	572,655
Development of a Multiplexed Assay in Kinetoplastid Parasites to Identify Probes for Glycolysis (Supplement)	93.855	3R01AI156382-03S1	-	82,888
COVID 19 - Development of an Automated Diagnostic Platform for SARS-CoV-2 Monitoring in Vulnerable Areas	93.273	4U01AA029328-02	30,069	35,163
Development of an Integrated Intervention Involving Recovery Coaching and Cognitive Behavioral Therapy for Opioid use Disorder	93.279	R34DA057662	341,307	392,168

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
Development, Validation, and Application of a CDS Ontology to Facilitate CDS Rules Reuse, Management, and Maintenance in Simulated Primary Care Settings	93.859	5R01GM138589-03	39,740	388,643
Elucidating the Necessary Components and Mechanisms of Cognitive Training	93.866	7U01AG062370-03 REVISED		284,907
Enolase Inhibitors as Therapeutic Leads for Naegleria Fowleri Infections	93.855	1R21AI171217-01A1	31,185	192,769
EPIC COBRE - Eukaryotic Pathogens Innovation Center - Year 1 Carryover	93.859	5P20GM146584-02	-	255,971
EPIC COBRE - Eukaryotic Pathogens Innovation Center - Year 1 Carryover (Stamatikos)	93.859	5P20GM146584-02	-	54,099
EPIC COBRE - YR 3 Admin Core (Morris)	93.859	5P20GM146584-03	-	102,054
EPIC COBRE - YR 3 Pilot Project (Lewis)	93.859	5P20GM146584-03	-	7,699
EPIC COBRE - YR 3 Res Core-CLIF (Bruce)	93.859	5P20GM146584-03	-	21,748
EPIC COBRE - YR 3 Res Core-CUGBF (Parkinson)	93.859	5P20GM146584-03	-	43,241
EPIC COBRE - YR 3 ResProj#1 (Larsen)	93.859	5P20GM146584-03	-	12,472
EPIC COBRE - YR 3 ResProj#2 (Dhingra)	93.859	5P20GM146584-03	-	30,388
EPIC COBRE - YR 3 ResProj#3 (Stamatikos)	93.859	5P20GM146584-03	-	22,164
EPIC COBRE - YR 3 ResProj#4 (Whitehead)	93.859	5P20GM146584-03	-	36,233
Genetic Basis of Lifespan and Healthspan Extension by ACE Inhibition in Drosophila	93.866	5R01AG073181-02	203,165	469,443
Genetics of Cocaine and Methamphetamine Sensitivity in Drosophila	93.279	5U01DA041613-05	-	(31,902)
Genetics of Cocaine and Methamphetamine Sensitivity in Drosophila	93.279	2U01DA041613-06	-	290,366
Genetics of Cocaine Sensitivity in Drosophila	93.279	5U01DA041613-08	-	113,197
Health Extension for Diabetes: Program Expansion to Advance Health Equity	93.988	1 NU58DP007383-02-00	164,093	382,243
High Resolution Approaches to Defining Organelle Heterogeneity in Trypanosoma Brucei	93.855	5R21AI171837-02	-	147,584
COVID 19 - Human Organoid Model for COVID-19 Myocarditis	93.837	1R21HL167211-01A1	7,598	63,090
Identification and Characterization of Early Encystation Genes in the Human Parasite Entamoeba Histolytica	93.855	1R21AI175730-01	-	97,213
Identifying an Atherogenic Role for Vascular Smooth Muscle Cell miR-33a Expression	93.837	1R15HL152261-01A1	-	31,505
Impact of Pathogenic Missense Mutations on the ARID Domain of ARID1a	93.396	1R15CA280699-01	8,000	173,200
Improving Assessment of Subjective Memory Impairment for Detecting Alzheimer's Disease: A Coordinated Analysis in Two Measurement Burst Studies	93.866	7R01AG062605-04	133,963	284,522
Inhibition of Human Islet Amyloid Polypeptide Aggregation	93.859	1R35GM145409-01	-	304,775
Integrating Craniofacial Morphology, Oral Function, Temporomandibular Biomechanics and Mechanobiology to Determine Sex-Specific TMJ Pathophysiology in Humans	93.121	5R01DE021134-07 REVISED	63,159	505,270
Investigating the Use of Exoskeletons for Reducing Musculoskeletal Injuries in Surgical Care Tasks	93.226	1R03HS029247-01	1,076	56,254
Leveraging the HIF-Alpha Pathway to Improve the Engraftment and Therapeutic Efficacy of Human Nanowired Cardiac Organoids	93.837	1F31HL156541-01	-	16,685
Maintenance and Development of DelPhi and Associated Resources	93.859	5R01GM093937-11	65,631	258,233
Mechanistic Pharmacodynamic Modeling for Drug Combination Responses	93.859	5R35GM141891-03		284,059
Medial Arterial Calcification: Mechanisms and Therapy	93.837	5R01HL145064-04	4,458	211,035
MENTOR: Medical Enrichment Through Opportunities in Research	93.855	5T35AI134643-05	-	18,602
MENTOR: Medical Enrichment Through Opportunities in Research	93.855	5T35AI134643-04	-	(11,575)
Motor Neuron Formation is Inhibited by Arsenic	93.113	1R03ES036027-01	-	35,371

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
Nanoparticle Distributed Intravenous Enzyme Replacement Therapy (NanoDIVERT)	93.853	1R21NS133477-01	12,938	130,707
Nanowired Humam Cardiac Organoid Derived Exosomes for Heart Repair	93.837	1R01HL168255-01	157,620	239,442
Nanowired Human Cardiac Spheroids for Heart Repair	93.873	5R01HL133308-04	-	131
Nanowired Human Isogenic Cardiac Organoids to Treat Acute Myocardial Ischemia/Reperfusion Injuries	93.837	1U01HL169361-01	17,647	165,607
Neuron-Specific Nanotherapeutics for Spinal Cord Injury Repair	93.853	5R01NS111037-04 REVISED	305	152,927
Niche Partitioning of Commensal Clostridia in the Gut	93.859	1R35GM150609-01	-	115,245
Nonviral Delivery of CRISPR-Cas9 into Hepatocytes Combined with APAP Selection for Treatment of Familial Hypercholesterolemia	93.837	1R56HL168093-01	51,355	434,979
Open, Interoperable, and Configurable Clinical Decision Support Modules for OpenMRS, OpenEMR, and Beyond	93.859	3R01GM138589-03S1	9,076	30,236
Oral Microbiomes and Dental Caries in a Human Immunodeficiency Virus Infected Population	93.121	5R01DE028154-05	53,806	326,344
Pre-mRNA Intronic Structures in Trans Factor Binding and Alternative Splicing	93.859	5R35GM142851-02	-	338,860
Psychosocial and Neighborhood Mechanisms and Consequences of Black-White Sleep Disparities on Cognition	93.866	7UF1AG072619-02	48,048	267,779
Purification of Circular RNA by Ultrafiltration	93.859	1R21GM145980-01	-	151,040
Realizing Improved Patient Care through Human-Centered Design for Pediatric Mental and Behavioral Health in the Emergency Department (RIPCHD.PED)	93.226	1R18HS029109-01	115,986	455,780
Reducing Fall Risk in Rural, Older South Carolinians	93.761	90FSPSG0047-01-00	-	73,399
Regulation of the Physiology and Function of the Digestive Vacuole in Toxoplasma Gondii	93.855	5R01AI143707-05	105,841	312,422
Role of Homologous Recombination in the Replication Stress Response	93.859	3R35GM142512-03S1	-	244,100
Role of Homologous Recombination in the Replication Stress Response	93.859	5R35GM142512-03	-	375,127
COVID 19 - SARS-CoV2 Sequencing Surveillance Program for Upstate South Carolina - Supplement to SC TRIMH COBRE - COVID	93.859	5P20GM121342-05S1	-	62,628
SC BioCRAFT Phase III Year 3-Main Admin	93.859	5P30GM131959-03	3,837	3,837
SC BioCRAFT Phase III Year 4 - Admin Core	93.859	5P30GM131959-04	26,819	26,819
SC BioCRAFT Phase III Year 4 - CTRIC Core	93.859	5P30GM131959-04	14,548	14,548
SC BioCRAFT Phase III Year 4 - Lee Pilot	93.859	5P30GM131959-04	-	57,435
SC BioCRAFT Phase III Year 4 - Voucher Program	93.859	5P30GM131959-04	-	3,429
SC BioCRAFT Phase III Year 5 - Abdelaziz Pilot	93.859	5P30GM131959-05	-	18,577
SC BioCRAFT Phase III Year 5 - BET Core	93.859	5P30GM131959-05	-	312,228
SC BioCRAFT Phase III Year 5 - Booth Pilot	93.859	5P30GM131959-05	-	48,710
SC BioCRAFT Phase III Year 5 - CTRIC Core	93.859	5P30GM131959-05	-	211,955
SC BioCRAFT Phase III Year 5 - Voucher Program	93.859	5P30GM131959-05	-	29,848
SC BioCRAFT Phase III- YR2 Main Carryover	93.859	5P30GM131959-03 REVISED	-	102,514
SC BioCRAFT Phase III-Main	93.859	5P30GM131959-03 REVISED	7,647	7,647
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH)	93.859	3P20GM121342-06S1	7,858	227,317
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH)	93.859	3P20GM121342-05S2	-	967
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - 5 YR AFT	93.859	5P20GM121342-05	-	19,873
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 Admin Core	93.859	5P20GM121342-05	118,643	188,565
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 Foley	93.859	5P20GM121342-05	-	6,589
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 Harman	93.859	5P20GM121342-05	-	29,856

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 MCM Core	93.859	5P20GM121342-05	-	39,140
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 PAC	93.859	5P20GM121342-05	41,351	61,938
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 Powder	93.859	5P20GM121342-05	-	26,408
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 WU	93.859	5P20GM121342-05	-	19,576
SC COBRE for Translational Research Improving Musculoskeletal Health (SC-TRIMH) - YR 5 Ye	93.859	5P20GM121342-05	-	26,303
SC County Health Extension: High Obesity Prevention and Elimination	93.319	5NU58DP006562-04-00	-	573,942
SC TRIMH - Year 1 thru 3 Peng	93.859	5P20GM121342-03 REVISED	-	(103)
SC TRIMH - Year 6 Admin Core	93.859	2P20GM121342-06	133,335	556,128
SC TRIMH - Year 6 AFT Core	93.859	2P20GM121342-06	-	284,411
SC TRIMH - Year 6 Floyd	93.859	2P20GM121342-06	-	94,710
SC TRIMH - Year 6 MCM Core	93.859	2P20GM121342-06	-	187,223
SC TRIMH - Year 6 Meng	93.859	2P20GM121342-06	-	195,502
SC TRIMH - Year 6 PAC Core	93.859	2P20GM121342-06	-	93,239
SC TRIMH - Year 6 Powder	93.859	2P20GM121342-06	-	206,161
SC TRIMH - Year 6 Wang	93.859	2P20GM121342-06	-	106,285
SC TRIMH - Years 1 thru 3 AFT	93.859	5P20GM121342-03 REVISED	-	(47)
Single-Molecule Measurements of Membrane-Protein Folding and Ligand-Interaction Energetics in Bacteriorhodopsin and the Diabetes-Insipidus-Involved Vasopressin Receptor 2	93.859	4R00GM140439-03	-	131,435
Species-Specific Chromatin Structure and its Environmental Interaction in Craniofacial Skeletal Development and Variation Using Cichlid Fishes	93.121	1R15DE029945-01 Revised	-	193,907
Statistical Methods for Gene Eegulatory Analysis of Substance Use Disorder	93.279	1R21DA060503-01	-	33,406
Statistical Methods for Interpretation of Genetic Variants by Gene Regulatory Networks	93.859	1R35GM150513-01	-	243,590
SutureCoach: Examining Vascular Suturing Skills Assessment, Training, and Transfer of Training via Objective Metrics	93.837	5R01HL146843-03	-	123,541
Systems Genetics of Cocaine Preference in Drosophila	93.279	1F31DA057062-01A1	-	44,240
Targeted Therapy to Reverse Aortic Aneurysms	93.837	2R01HL133662-05A1	135,705	278,830
The Development of an EHR-Based Measure of Orthopaedic Treatment Success	93.226	1R03HS029060-01	15,919	41,873
The Role of Septins in the Adaptation of Cryptococcus Neoformans to Host Temperature in HIV-Based Cryptococcosis	93.855	5R01AI167692-02	-	362,722
Tissue Structure and Mechanical Function Relationships of the Human Temporomandibular Lateral Capsule-Ligament: Investigation of Sexual and Racial Dimorphisms	93.121	1K99DE031345-01A1	-	55,236
TMJ SYMPHONY Systems-Integrated Model and Mechanisms of Patient-Centered Holistic Outcomes and Network-Supported Training and Therapy	93.121	1R34DE033593-01	69,017	167,289
Understanding and Using Gene-by-Context Interactions in Human Complex Trait Genetics	93.859	5R35GM146868-03	-	560,640
Validating Sensor-Based Approaches for Monitoring Eating Behavior and Energy Intake by Accounting for Real World Factors that Impact Accuracy and Acceptability	93.847	1R01DK135679-01	342,434	601,717
Pass-through programs from: Annoviant LLC Pulmonary Valved Conduit Xenograft with Regeneration Potential	93.838	Annoviant 2022-010	-	72,688

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
Pass-through programs from:				
Aptus Life, LLC				
Pediatric Heart Valve with Expansion Capability	93.837	20210920R41	-	(1,603)
Aravis Biotech				
The X-VISUAL (X-ray Visualized Indicator for Screw-Strain Under Applied Load)	93.846	1R43AR083782-01 CU	-	50,696
X-ray Visualized Implanted Sensor for Prosthetic Joint Infection (X-VIS-PJI)	93.846	1R43AR081748-01	-	22,842
Arizona State Univ.				
Smart Walk: A Culturally Tailored Smartphone-Delivered Physical Activity Intervention to Reduce Cardiometabolic Disease Risk among African American Women	93.837	ASUB00001365	-	52,961
Blotting Innovations, LLC				
Accessible and Robust High-Throughput Western Blotting for Small Sample Sizes	93.859	1R41GM148112-01CU	-	63,356
Gelbrane: Combine Gel and Membrane for Robust Western Blotting	93.859	1R41GM151910-01CU	-	59,365
Circa Bioscience, LLC				
Development of a Urine Test for At-Home Monitoring of Blood Phe Levels for PKU	93.865	C112228-1	-	33,675
Columbia University				
Mechanisms of Accelerated Calcification and Structural Degeneration of Implantable Biomaterials in Pediatric Cardiac Surgery	93.837	1(GG018622-01) / SAPO: G17637	-	39,613
Drexel University				
Regulation of SCI-Induced Pain by Macrophages and Exercise	93.853	900352 Clemson / PO U0305509	-	19,602
Duke Univ.				
Develop a Large-Scale Library of Comprehensive Deformable Image Registration (DIR) Benchmark Datasets and an Integrated Framework for Quantifying Accuracy of Patient-Specific DIR Results	93.286	303002661	-	65,892
Emory Univ.				
Macromolecular Crowding Effects on DNA Mechanics, Topology and Transcription	93.859	A963232	-	52,298
Florida State Univ.				
Multimodal Integrative Dimension Reduction and Statistical Modeling with Applications to Temporomandibular Joint (TMJ) Morphometry and Biomechanics	93.121	R000002870	-	34,300
A Mechanistic and Dyadic Approach to Identify How Interpersonal Conscientiousness Supports Cognitive Health and Lowers Risk of Dementia	93.866	R000003268	-	95,156
Greenwood Genetics Center				
Pathogenic Mechanisms of Congenital Disorders of Glycosylation	93.859	2301-912023	-	52,115

The accompanying notes are an integral part of this schedule.

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
Pass-through programs from:				
Hampton University				
The Black American United Memory & Aging Project (BA-UMAP): An Examination of Cognitive Middle and Older Black Adults Using Remote Cognitive Assessments, Risk Factors & Biomarkers	93.866	HU-230010	-	123,300
The Black American United Memory & Aging Project (BA-UMAP): An Examination of Cognitive Middle and Older Black Adults Using Remote Cognitive Assessments, Risk Factors & Biomarkers	93.866	HU-230010	-	19,113
Indiana University				
Cavopulmonary Assist to Reverse the Fontan	93.837	8778 / PO0266438	-	17,337
LiveWell Greenville				
Community-Driven Approaches to Address Factors Contributing to Structural Racism in Public Health	93.137	None	-	14,919
Medical Univ. of SC				
Establishing an Artificially Intelligent Framework for Therapeutic Alliance with Obese African American Youth and Caregivers through Multimodal Monitoring of Empathetic Accuracy and Interpersonal Synchrony	93.307	A23-0100-S002	-	134,463
Identifying and Reducing Errors in Perioperative Anesthesia Medication Delivery	93.226	A00-3876-S001/MUSC18-134-8D662	-	3,835
Multi-Site Study of Dyslexia	93.865	A00-0250-S001 (MUSC19-19-89225)	-	15,776
Role of Sphingosine-1-phosphate Receptor 2 in Osteoblastogenesis and Bone Regeneration in Periodontitis	93.121	A22-0025-S001	-	6,594
SC Biomedical Informatics & Data Science for Health Equity Research Training (SC BIDS4HEALTH)	93.879	A23-0007-S001	-	122,769
South Carolina Cancer Disparities Research Center (SC CADRE)	93.397	A00-3431-S005 Year 1	-	1,651
System Optimization for Advances in Sterile Processing	93.226	A22-0083-S001	-	78,348
New York University				
Map Leukemia-Immune Cell Talks with Nanoplasmon Ruler in CAR T-Cell Immunotherapy	93.395	F1429-02 / PO# iB00425635	-	120,349
Using Agent-Based Modeling to Compare Strategies That Can Reduce Rural-Urban Disparities in Cardiovascular Disease	93.307	23-A0-S2-1008788 / PO M230632369	-	42,048
North Dakota State Univ.				
Perceived Control and Cognitive Aging: Pathways to Alzheimer's Disease in Socioeconomically Diverse Populations	93.866	FAR0036250	-	33,365
NUBAD, LLC.				
Development of Peptide Antibiotic Nucleic Acids Aminoglycosides with Reduced Ototoxicity	93.855	PNA2 (2020001112)	-	206,686
	93.855	R42A11 26874	-	193,409
Oregon State Univ.				
Effects of Multi-axial Whole Body Vibrations on Postural Stability	93.262	P0495A-B	-	26,195
Pennsylvania State Univ.				
Ambulatory Methods for Measuring Cognitive Change	93.866	S002196-DHHS	-	22,301
An Ecological Investigation of Acute Next-Day Effects of Alcohol Use on Daily Cognitive Functioning	93.273	S004624-DHHS	-	55,466
Integrative Pathways to Health and Illness	93.866	S005053-UWS	-	169,781
Integrative Pathways to Health and Illness	93.866	S003667-UW	-	36,422

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
Pass-through programs from:				
Prisma Health Upstate				
Emergency Department Alternatives to Opioids:				
Adapting Proven Therapies Into Everyday Practice Across the South	93.788	1000597 CLEM UNIV A202212651A-01CU; GHS Grant # G001217	-	49,638
Managing Abstinence in Newborns (MAIN) 2.0, Expansion	93.000		-	169,118
Project Power - Preventing Opioid Use Disorder and Overdoses with Emerging Resources in Rural South Carolina	93.912	10000768 Project POWER-CU subaward	-	41,319
Regents of the University of California				
Reciprocal Effects Between Scaffold Geometry and Ventricular Vortex Flow on Viability and Performance of Tissue-Engineered Mitral Valve	93.837	2023-1896	-	103,032
Research Foundation for the SUNY				
Single Molecule Analysis of MAGUK Structure and Ligand Binding	93.242	81534/2/1147013	-	4,335
SC Dept. of Health & Human Services				
Quality Assurance Services for the Bureau of Long Term Care Services (Federal) - Year 2 FY23	93.000	A202611999A (Federal) - FY23	-	25
Quality Assurance Services for the Bureau of Long Term Care Services (Federal) - Year 3 FY24	93.000	A202611999A (Federal) - FY24	-	713,845
SC Dept. of Social Services				
Child Support Employment Initiative - Year 3	93.563	4400025040 Year 3	-	813,936
Child Support Employment Initiative - Year 4	93.563	4400025040 Year 4	-	1,620,972
Sigray, Inc				
Development of a Bio-tissue Oxygenation Nanophosphor Enabled Sensing (BONES) system for Quantifying Hypoxia in Bone Marrow	93.859	Clemson 003	-	114,105
Sojourn Medtech LLC				
A Smart Simulator for Metrics-based Cannulation Skills Training for Hemodialysis	93.847	1R43DK137665-01A1-CU	-	23,291
Sonavex, Inc.				
Validation of a Bedside Automated 3D Ultrasound-Based Arteriovenous Fistula Cannulation Guidance Solution to Improve AV Fistula Outcomes	93.000	1R44DK131644-01	-	89
SpineFrontier Inc.				
X-Ray Visualized Interbody Spacer Indicating Biomechanical Load (X-VISIBL) Fusion Device	93.846	CLU001	-	404
State University of New York				
Resolving the Intoxication Mechanism of Botulinum Neurotoxins using Single Molecule Structural Biology	93.859	98630/1185264/2	-	20,072
The Miriam Hospital				
Optimizing Just-in-Time Adaptive Intervention to Improve Dietary Adherence in Behavioral Obesity Treatment: A Micro-Randomized Trial	93.837	7107147197 (7147197)	-	56,508
Using Multimodal Real-Time Assessment to Phenotype Dietary Non-Adherence Behaviors that Contribute to Poor Outcomes in Behavioral Obesity Treatment	93.847	7147284	-	25,326

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
Pass-through programs from:				
Tissue Testing Technologies, LLC				
Ice-Free Vitrification and Nanowarming of Large Osteochondral Grafts for Transplantation	93.846	1-R44-AR073136-02	-	(3,572)
Ice-Free Vitrification and Nanowarming Technology for Banking of Cardiovascular Structures	93.837	4-R44-HL142455-02	-	25,463
UNandUP				
Low-Dose Magneto-Thrombolysis to Expand Stroke Care	93.853	None	-	60,871
Univ. of Arkansas				
Systems Mechanobiology Modeling for Patient-Specific Cardiac Fibrosis Predictions Title Systems Mechanobiology Modeling for Patient-Specific Cardiac Fibrosis Predictions				
Telehealth Focused Rural Health Research Center Cooperative Agreement	93.837	UA2023-380 / SPC-007132	-	2,222
	93.307	54570	-	40,815
Univ. of California Davis				
SMART Cancer Care Teams: Enhancing EHR Communication to Improve Interprofessional Teamwork	93.393	A23-0294-S004	-	17,007
Univ. of Georgia				
Microglial RGS10 as a Therapeutic Target for Lewy Body Diseases	93.853	SUB00002385	-	43,342
Univ. of Kentucky				
Subjective Mental Workload Evaluation of Logging Equipment Operators	93.262	3210002492-23-148 / PO#7800006745	-	1,077
Univ. of Nebraska - Lincoln				
Renewal: Group Testing for Infectious Disease Detection: Multiplex Assays and Back-End Screening	93.855	24-6225-0056-002	-	144,002
Univ. of Pittsburgh				
Collaborative for REsearch to Advance TMD Evidence (CREATE)	93.121	AWD00008151 (139500-2)	-	21,915
Univ. of South Carolina				
Carolina Center on Alzheimers Disease and Minority Research (CCADMR) - Research Education Core (Training)	93.866	23-5218 PO 2000067924/USC 10012054	-	3,185
Carolina Center on Alzheimer's Disease and Minority Research (CCADMR) Research Education Core (Training)	93.866	23-5219 PO#2000067917/USC 10012054	-	8,759
Effects of Musculoskeletal Surgery Rate on Medicare Costs - Year 3	93.226	23-5002 PO# 2000066416	-	15,077
Improving Immunization Information System Implementation in Community Pharmacies	93.855	22-4904 USC No.10011952 PO#2000063926	-	16,911
SC INBRE Administrative Supplement - Development of a 3D Widefield Imaging and Navigation System with Microscopic Assessment of Large-Size Cartilage Samples	93.859	23-5173 PO#2000068391	-	82,152
SC INBRE SIRP Award - Applying a Citrate Biomaterial to Reduce Ferroptosis in Spinal Cord Injury	93.859	23-5096 PO#2000066739/ USC 10012490	-	1,632
South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) - Administrative Core - Year 4 of 5 PO 2000073440 / USC 10013200	93.859	24-5614 PO 2000073440 / USC 10013200	-	25,857
South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) - Year 3	93.859	23-5064 PO#2000066586/ USC 10012234	-	53,379

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Department of Health and Human Services, continued				
Pass-through programs from:				
South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) Year 1 - Administrative Core	93.859	21-4211 PO #2000055332/ USC No.10010420	-	(473)
The Development and Evaluation of a Patient-Centered Opioid Discharge Prescribing Guideline with the Electronic Health Record of a Health System	93.226	23-5179 PO# 2000067671	-	4,029
The Development and Evaluation of a Patient-Centered Opioid Discharge Prescribing Guideline with the Electronic Health Record of a Health System	93.266	24-5458 PO# 2000071872	-	41,042
Title South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) - Year 4 Dunn (Main PI - Martine LaBerge)	93.859	24-5614 PO 2000073440 / USC 10013200	-	21,842
Title South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) - Year 4 Gilmore (Main PI- Martine LaBerge)	93.859	24-5614 PO 2000073440 / USC 10013200	-	49,083
Univ. of South Florida				
ACTIVE MIND: An Adaptive Clinical Trial of Cognitive Training to Improve Function and Delay Dementia	93.866	6118-1099-00-E	19,661	394,898
PACT - Preventing Alzheimer's Disease with Cognitive Training (Cognitive Training to Reduce Incidence of Cognitive Impairment in Older Adults)	93.866	6118-1093-00-C / P000014593	56,332	1,468,408
Univ. of Utah				
Utah Center for Promotion of Work Equity Research (U-Power)	93.262	10060337-01-CU / PO# U000356898	-	12,174
VRM Labs, Inc.				
Protective Film-Forming Disinfectant Based on Chitosan/Water/Ethanol Tertiary Solutions	93.000	VRM2021	-	4,425
Protective Film-Forming Disinfectant Based on Chitosan/Water/Ethanol Tertiary Solutions	93.855	VRM2024	-	31,066
XLerate Health, LLC				
Bio-Annular Repair System (BARS) to Prevent Recurrent Intervertebral Disc Herniation	93.859	None	-	25,000
High-Throughput Multiplexing Electrophoretic Gel Apparatus and Related Methods	93.859	none	-	25,000
R-FIX (Rib-FIXation System) for Severe Progressive Spinal Deformity	93.000		-	16,230
Total Department of Health and Human Services			<u>3,747,269</u>	<u>33,693,912</u>
Department of Homeland Security				
Pass-through programs from:				
George Mason Univ.				
Understanding and Disrupting the Formation of New Criminal Networks: the Case of Novel Illicit Drug Trafficking Operations	97.061	E206378M	-	95,297
Total Department of Homeland Security			<u>-</u>	<u>95,297</u>
Agency for International Development				
Pass-through programs from:				
Cornell Univ.				
Feed the Future Innovation Lab for Crop Improvement (CIIL)	98.001	89915-11295	-	704,594
Kansas State University				
Feed the Future Innovation Lab for Climate Resilient Cereals (CRCIL)	98.001	A24-0240-S002	-	84,087

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RESEARCH AND DEVELOPMENT CLUSTER, continued				
Agency for International Development, continued				
Pass-through programs from:				
National Academy of Sciences				
Novel Perovskites for Solar Thermochemical Fuel Production	98.001	SCON-10000770	-	44,133
Louisiana Tech University				
Preclinical Evaluation of Combination Therapy of Rolipram and Minocycline for Arresting Secondary Injury Cascade after Traumatic Brain Injury	98.853	32-4111-56210-CU	-	6,578
Total Agency for International Development			-	839,392
Total Research and Development Cluster			18,942,028	147,748,143
Department of Education				
Student Financial Assistance Cluster				
Federal Direct Loans	84.268		-	118,084,668
Federal Pell Grant Program	84.063		-	18,296,485
Federal Perkins Loan Program Federal Capital Contributions	84.038		-	1,720,039
Federal Supplemental Educational Opportunity Grants	84.007		-	843,662
Federal Work Study Program	84.033		-	895,096
Federal Work Study Program - Federal Job Location and Development	84.033		-	-
Post Secondary Education Scholarships for Veteran's Dependents (Iraq and Afghanistan Service Grant)	84.408		-	5,230
Teacher Education Assistance for College and Higher Education Grants (TEACH Grants)	84.379		-	88,449
Total Student Financial Assistance Cluster			-	139,933,629
Special Education Cluster				
Pass-through programs from:				
SC Dept. of Education				
SC-CREATE Center for Clemson University	84.027	SC CREATE 23-24	-	11,606
South Carolina Educational Interpreting Center (SCEIC)	84.027	SCEIC	-	232,635
Total Special Education Cluster			-	244,241
Total Department of Education			-	140,177,869
Department of Agriculture				
SNAP Cluster				
Pass-through programs from:				
SC Dept. of Social Services				
FY 24 Snap-Ed: Formative Research and Evaluation	10.561	4400033468	-	146,375
FY 24 Snap-Ed: Go NAP SACC Community Partnership	10.561	4400033830	-	156,674
FY 24 Snap-Ed: Project 2: Coordinated Approach to Child Health(CATCH)	10.561	4400033662	-	159,586
FY 24 Snap-Ed: PROJECT 4 Policy, Systems, & Environmental Change	10.561	4400033481	-	141,802
FY 24 Snap-Ed: Cooking Matters	10.561	4400033480	-	162,189
FY 24 Snap-Ed: Health Matters/My Plate	10.561	4400033661	-	143,823
FY 24 Snap-Ed: PROJECT 6 Walk With Ease	10.561	4400033469	-	145,372
SNAP-ED: CATCH (Coordinated Approach to Child Health)	10.561	4400030506	-	26,595
SNAP-ED: Formative Evaluation	10.561	4400030532	-	38,240
SNAP-ED: Go-NAP SACC	10.561	4400030433	-	35,492
SNAP-ED: Implementation of Cooking Matters - Project 3	10.561	4400030367	-	37,093

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Department of Agriculture, continued				
SNAP Cluster				
Pass-through programs from:				
SNAP-ED: My Plate/ Sesame Street Healthy Habits	10.561	4400030515	-	52,751
SNAP-ED: Policy, System, and Environmental (PSE) Strategies and Outreach - Project 4	10.561	4400030366	-	66,192
SNAP-ED: Walk with Ease - Project 6	10.561	4400030365	-	47,460
Total SNAP Cluster			-	<u>1,359,643</u>
Total Department of Agriculture			-	<u>1,359,643</u>
Department of Interior				
Fish and Wildlife Cluster				
Pass-through programs from:				
MS Dept. of Wildlife, Fisheries, and Par National Bobwhite and Grassland Initiative FY24	15.611	None	-	29,102
Total Fish and Wildlife Cluster			-	<u>29,102</u>
Total Department of Interior			-	<u>29,102</u>
Highway Planning and Construction Cluster				
Pass-through programs from:				
SC Dept. of Transportation Transportation Technology Transfer Service (T3S) 2023	20.205	SPR 2-23	-	154,407
Total Department of Transportation			-	<u>154,407</u>
OTHER PROGRAMS				
Department of Agriculture				
South Carolina Meat-Poultry Inspection Department (Cross Utilization)	10.000	12-37-A-427 Cross Utilization DK	-	213,433
Total for Assistance Listing Number 10.000			-	<u>213,433</u>
FY22 D1 SC ADT	10.025	AP22VSSPRS00C050	-	61
FY23 D1 SC UMB - Avian	10.025	AP23VSSPRS00C087	-	156,408
FY23 D1 SC UMB - SGCE	10.025	AP23VSSPRS00C087	-	9,755
FY23 D1 SC UMB - Swine	10.025	AP23VSSPRS00C087	-	39,726
FY23 DI SC HPAI Clemson University	10.025	AP23VSSPRS00C009	-	1,877
FY24 D1 SC ADT	10.025	AP24VSSPRS00C080	-	324
Pest Detection/CAPS Infrastructure / SC FY24 CAPS Infrastructure	10.025	AP24PPQFO000C274	-	34,040
SC 2021 NADPRP Regional Mtg	10.025	AP22VSSP0000C040	-	2,869
SC 2022 NADPRP Mass Mortality Training	10.025	AP23VSSP0000C064	-	51,895
SC 2022 NADPRP Respond to Depop Events	10.025	AP23VSSP0000C061	-	4,663
SC 2022 NAHLN Infrastructure	10.025	AP22VSD&B000C034	-	379
SC 2023 NAHLN Infrastructure	10.025	AP23VSD&B000C039	-	181,971
SC FY 23 Imported Fire Ant Survey	10.025	AP23PPQFO000C314	-	34,316
SC FY21 Asian Longhorned Beetle Eradicator	10.025	AP21PPQFO000C530	-	1,920
SC FY22 Asian Longhorned Beetle Eradicator	10.025	AP22PPQFO000C517	-	3,020,856
SC FY22 Cogongrass Treatment and Outreach	10.025	AP22PPQFO000C498	-	23,819
SC FY22 Grape Commodity Survey 1S.0550.01	10.025	AP22PPQFO000C270	-	139
SC FY22 Honeybee Survey	10.025	AP22PPQFO000C185	-	1,856
SC FY22 P.ramorum Survey 1S.0477.01	10.025	AP22PPQFO000C328	-	3,586
SC FY23 Asian Longhorned Eradication Pro	10.025	AP23PPQFO000C477	-	3,175,796
SC FY23 CAPS Infrastructure	10.025	AP23PPQFO000C363	-	41,058
SC FY23 Citrus Commodity Survey 1S.0405.	10.025	AP23PPQFO000C242	-	15,790
SC FY23 Cogongrass Outreach	10.025	AP23PPQFO000C490	-	177,251
SC FY23 Cogongrass Survey	10.025	AP23PPQFO000C491	-	162,315

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OTHER PROGRAMS, continued				
Department of Agriculture, continued				
SC FY23 Cotton Seed Survey	10.025	AP23PPQFO000C361	-	24,325
SC FY23 Grape Commodity Survey 1S.0550.01	10.025	AP23PPQFO000C281	-	29,721
SC FY23 Honeybee Survey 1S.0658.01	10.025	AP23PPQFO000C360	-	11,751
SC FY23 P.ramorum Survey 1S.0477.01	10.025	AP23PPQFO000C453	-	14,304
SC FY23 Stone Fruit Survey 1S.0395.01	10.025	AP23PPQFO000C280	-	21,106
SC FY23 Targeted Outreach 5.0406.01	10.025	AP23PPQFO000C452	-	31,513
SC FY23 Yellow Legged Hornet	10.025	AP23PPQFO000C548	-	5,918
SC FY24 CAPS Survey	10.025	AP24PPQFO000C288	-	13,461
SC FY24 Citrus Commodity Survey 1S.0405	10.025	AP24PPQFO000C237	-	5,073
SC FY24 Grape Survey 1S.0550.01	10.025	AP24PPQFO000C239	-	6,421
SC FY24 Imported Fire Ant	10.025	AP24PPQFO000C431	-	27,837
SC FY24 Targeted Outreach 5.0406.01	10.025	AP24PPQFO000C272	-	2,823
SC FY24 Yellow Legged Hornet Response 6R	10.025	AP24PPQFO000C240	-	25,420
SC US Swine Health Improve Plan (SHIP)	10.025	AP24VSSP0000C021	-	4,999
SC US Swine Health Improvement Plans (SHIP)	10.025	AP23VSSP0000C003	-	12,742
Total for Assistance Listing Number 10.025			-	7,380,083
Program Income for 207-2024895 "Towards a more Robust Portfolio of Entrepreneurship and Production Training for South Carolina's Emerging Farmers"	10.311	Program Income	-	20,162
Towards a more Robust Portfolio of Entrepreneurship and Production Training for South Carolina's Emerging Farmers	10.311	2021-70033-35707	-	158,176
Total for Assistance Listing Number 10.311			-	178,338
Program Income for 207-2023604 Business Acumen Training, Professional Networking, and Innovation Support for Emerging Agricultural and Food System Entrepreneurs in Rural South Carolina	10.351	Case #841224685	-	(507)
Total for Assistance Listing Number 10.351			-	(507)
South Carolina Meat-Poultry Inspection Department - Laboratory	10.475	BASE23 (12-37-A307)	-	4,188
South Carolina Meat-Poultry Inspection Department - All Other	10.475	12-37-A-307	-	300,649
South Carolina Meat-Poultry Inspection Department - All Other	10.475	BASE23 (12-37-A307)	-	106,837
South Carolina Meat-Poultry Inspection Department - All Other	10.475	BASE22 (12-37-A307)	-	(2,926)
South Carolina Meat-Poultry Inspection Department - Compliance	10.475	12-37-A-307	-	135,445
South Carolina Meat-Poultry Inspection Department - Compliance	10.475	BASE23 (12-37-A307)	-	46,660
South Carolina Meat-Poultry Inspection Department - Compliance	10.475	BASE22 (12-37-A307)	-	(4,963)
South Carolina Meat-Poultry Inspection Department - Cross Utilization	10.475	12-37-A-427 Cross Utilization FY23	-	81,479
South Carolina Meat-Poultry Inspection Department - Cross Utilization FY22	10.475	12-37-A-427 Cross Utilization FY22	-	66,959
South Carolina Meat-Poultry Inspection Department - In-Plant	10.475	BASE23 (12-37-A307)	-	298,089
South Carolina Meat-Poultry Inspection Department - In-Plant	10.475	12-37-A-307	-	846,708
South Carolina Meat-Poultry Inspection Department - Laboratory	10.475	12-37-A-307	-	9,613
South Carolina Meat-Poultry Inspection Department - In-Plant	10.475	BASE22 (12-37-A307)	-	(4,970)
Total for Assistance Listing Number 10.475			-	1,883,768
AgrAbility in South Carolina	10.500	2022-41590-38364	38,100	76,750
Total for Assistance Listing Number 10.500			38,100	76,750

Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
OTHER PROGRAMS, continued				
Department of Agriculture, continued				
Smith - Lever	10.511	NI22SLBCXXXXG003	-	5,049,675
Total for Assistance Listing Number 10.511			-	5,049,675
Expanded Food and Nutrition Education Program	10.514	NI22EFNEPXXXXG006	-	744,447
Expanded Food and Nutrition Education Program	10.514	NI23EFNEPXXXXG016	-	1,075,335
FACT-CIN: Expanded Food and Nutrition Education Program - Web Based Nutrition Education and Evaluation Reporting System (WebNEERS)	10.514	2023-38834-40970	7,905	252,558
Total for Assistance Listing Number 10.514			7,905	2,072,340
Renewable Resources Extension Act	10.515	NI23RREAFXXXXG018	-	68,443
Renewable Resources Extension Act	10.515	NI24RREAFXXXXG008	-	18,730
Total for Assistance Listing Number 10.515			-	87,173
Development and Promotion of Mass Timber Noise Barriers for Highways	10.674	19-DG11083150-014	-	14,426
Development of a Mass Timber Structure Training Program	10.674	22-DG-11083150-307	-	53,069
Total for Assistance Listing Number 10.674			-	67,495
Southern Pine Beetle Portal Project	10.680	23-DG-11083150-125		8,538
Total for Assistance Listing Number 10.680			-	8,538
Providing Assistance to Rural Cooperatives and Mutually Owned Businesses through the South Carolina Center for Cooperative and Enterprise Development	10.771	46-039-576000254	45,467	149,921
Providing Assistance to Rural Cooperatives and Mutually Owned Businesses through the South Carolina Center for Cooperative and Enterprise Development	10.771	46-039-576000254 FY22 RCDG	27,442	60,320
Total for Assistance Listing Number 10.771			72,909	210,241
Pass-through programs from:				
Colorado State Univ.				
NAHLN: CO Animal Health Diagnostic Laboratory 2023-2024/5	10.025	G-50346-09	-	337,947
Tennessee Dept of Agric-Forestry Div				
Vascular Streak Dieback Detection Survey	10.025	0000027646	-	2,407
Total for Assistance Listing Number 10.025			-	340,354
Florida Certified Organic Growers and Co				
Clemson University Organic Certification Program (CU-OCP)	10.000	None	-	65,327
Total for Assistance Listing Number 10.000			-	65,327
Kansas State University				
4-H Military Partnerships and Outreach Support Programs	10.500	A00-0983-S105	-	875
Department of the Air Force 4-H Military Partnership Outreach & Support Program	10.500	A24-0175-S013	-	3,951
Total for Assistance Listing Number 10.500			-	4,826

Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
OTHER PROGRAMS, continued				
Department of Agriculture, continued				
Pass-through programs from:				
Project Victory Gardens				
Palmetto Veterans in Agribusiness	10.334	none	-	933
Total for Assistance Listing Number 10.334			-	933
Univ. of Florida				
The Southern Plant Diagnostic Network	10.304	SUB00003518	-	57,247
Total for Assistance Listing Number 10.304			-	57,247
Univ. of Florida				
Southern Regional Center for Food Safety Training, Outreach and Lead Regional Coordination Center	10.328	SUB00002999	-	6,038
Total for Assistance Listing Number 10.328			-	6,038
Univ. of Georgia				
Sustainable Agriculture Research and Education (SARE) - 2020-2021 Model State Program-Training (MSP20)	10.215	SUB00002352	-	10,753
Sustainable Agriculture Research and Education (SARE) Program 2020 - Southern SARE Model State Program - Training Grant	10.215	SUB00002637	-	12,016
Sustainable Agriculture Research and Education (SARE) Program 2021	10.215	SUB00002871	7,368	9,863
Total for Assistance Listing Number 10.215			7,368	32,632
Univ. of Tennessee				
Farm and Ranch Stress Assistance Network: Southern Region	10.525	9500095927	-	33,042
Total for Assistance Listing Number 10.525			-	33,042
Total Department of Agriculture			126,283	17,767,725
Department of Interior				
Archaeological and Historical Assessment of Fort Rutledge and the Battle of Essenecca	15.926	P21AP11636-00	-	17,666
Total for Assistance Listing Number 15.926			-	17,666
CESU - Metals Conservation in Fort Pulaski: Treatment of Iron Architectural Features and Museum Artillery	15.945	P20AC01065	-	22,328
Everhardt Park Break Program: Develop Accessibility Plan for Reconstruction Era National Historic Park Facilities and Programs	15.945	P24AC00023-00	-	13,081
ROCR D-3 Police Substation Historic Structures Report (HSR)	15.945	P22AC01967-00	-	36,172
Total for Assistance Listing Number 15.945			-	71,581
Total Department of Interior			-	89,247
Department of Justice				
Pass-through programs from:				
City of Greenville				
Greenville, SC Police Project Safe Neighborhood Expansion	16.710	none	-	18,059
Total for Assistance Listing Number 16.710			-	18,059

The accompanying notes are an integral part of this schedule.

(continued)

Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
OTHER PROGRAMS, continued				
Department of Justice, continued				
Pass-through programs from:				
National 4-H Council		20824/4-H NMP 12/		
4-H National Mentoring Program	16.726	15PJDD-21-GG-02766-MENT/20824	587	455
Total for Assistance Listing Number 16.726			587	455
SC Dept. of Alcohol and Drug Abuse Srvs.		OJP24-TX-LEAD-CLM-20231001-		
SC COSSUP Initiative	16.838	20240930	-	399
Total for Assistance Listing Number 16.838			-	399
Total Department of Justice			587	18,912
Department of State				
Strategic Partnership in US Government and Politics	19.900	SRB10023GR0066	-	33,954
Strategic Partnership in US Politics and International Affairs Between Clemson University and the University of Belgrade	19.900	SRB10020GR0064	-	39,138
Total for Assistance Listing Number 19.900			-	73,093
Pass-through programs from:				
World Learning Inc				
Clemson University Diversity & Inclusion via Signed Language	19.009	IDEAS22-Clemson01	-	28,726
Total for Assistance Listing Number 19.909			-	28,726
Total Department of State			-	101,818
Department of Transportation				
Highway Planning and Construction Cluster				
Pass-through programs from:				
SC Dept. of Transportation				
Transportation Technology Transfer Service (T3S) 2023	20.205	SPR 2-23	-	154,407
Total for Assistance Listing Number 20.205			-	154,407
Total Department of Transportation			-	154,407
Institute of Museum & Library Services				
NEA Grants for Arts Projects Dance - Syncopated Ladies	45.024	1919927-33-24	-	15,000
Total for Assistance Listing Number 45.024			-	15,000
Reconstructing the Black Archive: South Carolina as Case Study, 1739-1895	45.163	EH-288094-22	20,992	92,815
Total for Assistance Listing Number 45.163			20,992	92,815
Call My Name: The Black Experience in the South Carolina Upstate from Enslavement to Desegregation	45.164	GI-269711-20	-	6,209
Total for Assistance Listing Number 45.164			-	6,209
Pass-through programs from:				
California State University				
Mapping the Gay Guides: Understanding Historical LGBTQ Spaces Through Gay Travel Guides	45.149	S-7495-CLEMSON	-	56,024
Total for Assistance Listing Number 45.149			-	56,024

The accompanying notes are an integral part of this schedule.

(continued)

Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
OTHER PROGRAMS, continued				
Institute of Museum & Library Services, continued				
Pass-through programs from:				
The Teagle Foundation				
Cornerstone: Learning for Living	45.162	2005507	-	64,293
Total for Assistance Listing Number 45.162			-	64,293
Total Institute of Museum & Library Services			20,992	234,341
Small Business Administration				
Pass-through programs from:				
Univ. of South Carolina				
Small Business Development Center - Federal Operating Grant 2023	59.037	Federal-Clemson-2023 SBAHQ23B0041	-	456
Small Business Development Center - Federal Operating Grant 2022	59.037	Federal 2022 SBAHQ22B0060	-	383,535
Various Sponsors				
Program Income for 223-2025722	59.037	Program Income for 223-2025722	-	10,133
Program Income for 223-2026581	59.037	Program Income for 223-2026581	-	327
Total for Assistance Listing Number 59.037			-	394,450
Total Small Business Administration			-	394,450
Veterans Affairs				
2021-2022 Veteran Affairs Adaptive Sports Grant Program:				
Paralympic Soccer Program	64.034	SPORTS-21-017	-	(761)
Total for Assistance Listing Number 64.034			-	(761)
Pass-through programs from:				
Move United, Inc.				
Clemson Adaptive Sports and Recreation-Monthly Instruction	64.000	NONE	-	1,555
Track and Field	64.000	NONE	-	(149)
Total for Assistance Listing Number 64.000			-	1,406
Move United, Inc.				
VA 2023-2024 Adaptive Sport Grant Opportunity for Move United Member Organizations	64.034	None	-	3,026
Total for Assistance Listing Number 64.034			-	3,026
Total Veterans Affairs			-	3,671
Environmental Protection Agency				
Multipurpose Program Grants to State and Tribes	66.204	02D15421	-	16,070
Total for Assistance Listing Number 66.204			-	16,070
Consolidated Pesticide Certificate and Training	66.700	98463820	-	28,742
Consolidated Pesticide Enforcement Cooperative Agreements	66.700	98463623	-	233,171
Consolidated Pesticide Enforcement Cooperative Agreements	66.700	98463823	-	223,169
Consolidated Pesticide Enforcement Cooperative Agreements	66.700	98463723	-	158,486
Total for Assistance Listing Number 66.700			-	643,568

Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
OTHER PROGRAMS, continued				
Environmental Protection Agency, continued				
Pass-through programs from:				
eXtension Foundation				
2024 PSEFMP Project: Pesticides and Water	66.716	PSEFMP-2024-2403	-	5,271
Total for Assistance Listing Number 66.716			-	5,271
Upstate Forever				
Creating a Watershed-Based Plan for the Twelvemile River - Keowee River Watershed	66.468	FS-98431221-0	-	11,821
Total for Assistance Listing Number 66.468			-	11,821
Total Environmental Protection Agency			-	676,729
Department of Education				
Pass-through programs from:				
SC Dept. of Education				
Agriculture Teacher Education and Professional Development				
Future Farmers of America (FFA) Program Assistant	84.048	23 Clemson AgEd H63010107123	-	12,624
Future Farmers of America (FFA) Program Assistant	84.048	H63010107124	-	10,352
Future Farmers of America (FFA) Program Assistant	84.048	23 Clemson FFA H63010107123	-	14,592
Total for Assistance Listing Number 84.048			-	37,569
SC Dept. of Education				
After-School Program at Cedar Grove Elementary	84.287	H63010006924	91,276	100,971
After-School Program at Liberty Primary and Liberty Elementary	84.287	22-23 21st CCLC-50/H63010006923	2,723	2,723
After-School Program at Liberty Primary and Liberty Elementary	84.287	23-24 21st CCLC-50 H63010006924/	10,518	65,175
After-School Program at West Pelzer and Spearman Elementary	84.287	23-24 21st CCLC-20 H63010006924	94,294	127,762
Nita M. Lowey 21st Century Community Learning Centers - After-School Program at Cedar Grove Elementary and Palmetto Elementary	84.287	22-23 21st CCLC-41/H63010006923	9,667	9,667
Nita M. Lowey 21st Century Community Learning Centers - After-School Program at West Pelzer, Spearman Elementary	84.287	22-23 21st CCLC-20/H63010006923	7,978	7,978
Total for Assistance Listing Number 84.287			216,456	314,276
SC Dept. of Education				
COVID 19 - American Rescue Palm - Elementary and Secondary School Emergency Relief (ARP ESSER) Call Me MISTER Initiative Engagement Agreement				
	84.425U	None	-	198,875
Total for Assistance Listing Number 84.425			-	198,875
The Ohio State Univ.				
Refining and Expanding HEROES: A Literacy Intervention for Young Students with IEPs				
	84.411	SPC-1000003969 / GR117381	-	72,843
Total for Assistance Listing Number 84.411			-	72,843
Total Department of Education			216,456	623,562

Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
OTHER PROGRAMS, continued				
Department of Health and Human Services				
Mental Health Awareness Training	93.243	1H79SM084452-01/5H79SM084452-02	148,449	148,449
Mental Health Training in Youth Sport	93.243	1H79SM084490-01	-	109,343
REAL Counselor Training and Development: Reinforcing Education through Addictions-Focused Learning	93.243	6H79FG000032-01M001	-	20,125
Total for Assistance Listing Number 93.243			148,449	277,917
Advanced Nurse Education-Sexual Nurse Assault Examiner Program	93.247	2 T96HP32502-04-00	195,138	333,155
Total for Assistance Listing Number 93.247			195,138	333,155
Nurse Education, Practice, Quality and Retention	93.359	6 UK1HP46052-02-01	163,327	937,585
Nurse Education, Practice, Quality and Retention Simulation Education Training Program	93.359	1 T48HP52018-01-00	13,931	424,049
Total for Assistance Listing Number 93.359			177,258	1,361,634
Disease Modeling and Analytics to inform Outbreak Preparedness, Response, Intervention, Mitigation, and Elimination in South Carolina (DMA-PRIME)	93.823	1 NU38FT000011-01-00	117,350	912,848
Total for Assistance Listing Number 93.823			117,350	912,848
SC BIOCRAFT Phase III Year 5 - Admin Core	93.859	5P30GM131959-05	-	557,888
Total for Assistance Listing Number 93.859			-	557,888
Rural Communities Opioid Response Program-Neonatal Abstinence Syndrome	93.912	6G26RH40075-02-01	135,993	135,993
Total for Assistance Listing Number 93.912			135,993	135,993
Pass-through programs from: National Council on Aging COVID 19 - Accelerating Influenza and Covid-19 Vaccination in South Carolina	93.048	90ADC10008-01-05	224,402	431,646
Total for Assistance Listing Number 93.048			224,402	431,646
SC Dept. of Health and Env Control Injury Prevention and Control Research and State and Community Based Programs	93.136	DC-4-320	-	13,507
Total for Assistance Listing Number 93.136			-	13,507
SC Dept. of Health and Env Control Academic Detailing	93.354	CY-19-018 FR#4000043462/LR-2020-06	1,406,323	1,406,323
South Carolina Public Health Preparedness Student Corp (SCPHPSC)	93.354	PH-2-533	1,183,661	1,976,208
Total for Assistance Listing Number 93.354			2,589,984	3,382,530
University of Kentucky Research Foundati Southeast Center for Agricultural Health and Injury Prevention - PILOT PROJECTS	93.262	3210002492-24-191 / PO 7800007361	-	963
Total for Assistance Listing Number 93.262			-	963
Total Department of Health and Human Services			3,588,574	7,408,081

The accompanying notes are an integral part of this schedule.

(continued)

Clemson University
Schedule of Expenditures of Federal Awards
For the year ended June 30, 2024

Federal Grantor/Pass-Through Grantor/Program Title	Assistance Living Number	Pass-through Entity Identifying Number	Passed through to Subrecipient	Total Federal Expenditures
OTHER PROGRAMS, continued				
Department of Homeland Security				
Pass-through programs from:				
SC Emergency Management Division				
COVID 19 - Clemson University COVID-19 Project 1 (S, Cat B) - Project #124	97.000	PA-04-SC-4492-PW-00124 (186)	-	16,738
Total for Assistance Listing Number 97.000			-	16,738
Total Department of Homeland Security			-	16,738
Total Other Programs			3,952,892	169,056,297
Total Federal Expenditures			\$ 22,894,920	\$ 316,804,439

Clemson University

Clemson, South Carolina

Notes to the Schedule of Expenditures of Federal Awards

June 30, 2024

Note 1. Basis Of Presentation

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

Note 2. Summary Of Significant Accounting Policies

Expenditures in the Schedule are recognized following the cost accounting principles contained in the Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement. Negative amounts shown on the Schedule represent adjustments or credits made in the normal course of business to amounts reported as expenditures in prior years.

Expenditures for 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 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, 2024, were based on predetermined fixed rates negotiated with the University's cognizant federal agency. The University has elected not to use the 10-percent de minimis indirect cost rate as allowed under the Uniform Guidance.

Note 3. Federal Perkins Loan Program (Assistance Listing Number 84.038)

The Federal Perkins Loan Program is administered directly by the University and balances and transactions relating to the program are included in the University's financial statements. Federal expenditures reported on the face of the Schedule include loans outstanding at the beginning of the year, loan cancellations, interest subsidies, and administrative expenses. Due to the expiration of the Federal Perkins Loan Program on September 30, 2017, the University did not disburse any Perkins loans to students during the year ended June 30, 2024. The balance of loans outstanding under the Federal Perkins Loan Program was \$ 1,720,039 as of June 30, 2024. Schools have the option of continuing to collect on outstanding loan balance or can voluntarily liquidate the program. The University has no current plans to begin the Perkins liquidation process. However, the University is required to periodically return excess cash on hand from the program to the Department of Education.

Clemson University**Clemson, South Carolina**

Notes to the Schedule of Expenditures of Federal Awards

June 30, 2024

Note 4. Federal Direct Student Loans Program (Assistance Listing Number 84.268)

The University participates in the Federal Direct Student Loans (Direct Loans) program of the U.S. Department of Education (USDE), which includes subsidized and unsubsidized Federal Stafford Loans and Federal PLUS Loans. Under the Direct Loans program, the University is responsible only for certain administrative duties, accordingly, the disbursements under the program and the outstanding loan balances are excluded from the financial statements of the University.

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.



**INDEPENDENT AUDITORS' 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**

The Board of Trustees
Clemson University
Clemson, South Carolina

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the business-type activities and the aggregate discretely presented component units of Clemson University (the University), a component unit of the State of South Carolina, as of and for the year ended June 30, 2024, and the related notes to the financial statements, which collectively comprise the University's basic financial statements, and have issued our report thereon dated September 30, 2024.

The financial statements of Clemson University Foundation, and IPTAY were not audited in accordance with *Government Auditing Standards* and accordingly this report does not include reporting on internal control over financial reporting or instances of reportable noncompliance associated with Clemson University Foundation or IPTAY.

Report on Internal Control Over Financial Reporting

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

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

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

Report on Compliance and Other Matters

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

Purpose of This Report

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



CliftonLarsonAllen LLP

Atlanta, Georgia
September 30, 2024



**INDEPENDENT AUDITORS' REPORT ON COMPLIANCE FOR EACH MAJOR
FEDERAL PROGRAM, REPORT ON INTERNAL CONTROL OVER COMPLIANCE,
AND REPORT ON THE SCHEDULE OF EXPENDITURES OF
FEDERAL AWARDS REQUIRED BY THE UNIFORM GUIDANCE**

Board of Trustees
Clemson University
Clemson, South Carolina

Report on Compliance for Each Major Federal Program

Opinion on Each Major Federal Program

We have audited Clemson University's compliance with the types of compliance requirements identified as subject to audit in the OMB *Compliance Supplement* that could have a direct and material effect on each of Clemson University's major federal programs for the year ended June 30, 2024. Clemson University's major federal programs are identified in the summary of auditors' results section of the accompanying schedule of findings and questioned costs.

In our opinion, Clemson 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, 2024.

Basis for Opinion on Each Major Federal Program

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America (GAAS); the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Our responsibilities under those standards and the Uniform Guidance are further described in the Auditors' Responsibilities for the Audit of Compliance section of our report.

We are required to be independent of Clemson University and to meet our other ethical responsibilities, in accordance with relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on compliance for each major federal program. Our audit does not provide a legal determination of Clemson University's compliance with the compliance requirements referred to above.

Other Matter – Federal Expenditures Not included in the Compliance Audit

Clemson University's basic financial statements include the operations of three discretely presented component units and one blended component unit. Federal awards received by the Clemson Research Facilities Corporation (a blended component unit), Clemson University Foundation (a discretely presented component unit), IPTAY (a discretely presented component unit) and Clemson University Land Stewardship Foundation (a discretely presented component unit) are not included in Clemson University's Schedule of Expenditures of Federal Awards for the year ended June 30, 2024. Our compliance audit, described in the Opinion on Each Major Federal Program, does not include the operations of these component units because they did not receive federal awards or they engaged other auditors to perform an audit in accordance with Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*.

Responsibilities of Management for Compliance

Management is responsible for compliance with the requirements referred to above and for the design, implementation, and maintenance of effective internal control over compliance with the requirements of laws, statutes, regulations, rules and provisions of contracts or grant agreements applicable to Clemson University's federal programs.

Auditors' Responsibilities for the Audit of Compliance

Our objectives are to obtain reasonable assurance about whether material noncompliance with the compliance requirements referred to above occurred, whether due to fraud or error, and express an opinion on Clemson University's compliance based on our audit. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance will always detect material noncompliance when it exists. The risk of not detecting material noncompliance resulting from fraud is higher than for that resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Noncompliance with the compliance requirements referred to above is considered material if there is a substantial likelihood that, individually or in the aggregate, it would influence the judgment made by a reasonable user of the report on compliance about Clemson University's compliance with the requirements of each major federal program as a whole.

In performing an audit in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance, we:

- exercise professional judgment and maintain professional skepticism throughout the audit.
- identify and assess the risks of material noncompliance, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding Clemson University's compliance with the compliance requirements referred to above and performing such other procedures as we considered necessary in the circumstances.
- obtain an understanding of Clemson University's internal control over compliance relevant to the audit in order to design audit procedures that are appropriate in the circumstances and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of Clemson University's internal control over compliance. Accordingly, no such opinion is expressed.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and any significant deficiencies and material weaknesses in internal control over compliance that we identified during the audit.

Other Matters

The results of our auditing procedures disclosed instances of noncompliance, which are required to be reported in accordance with the Uniform Guidance and which are described in the accompanying schedule of findings and questioned costs as items 2024-001 and 2024-002. Our opinion on each major federal program is not modified with respect to these matters.

Government Auditing Standards requires the auditor to perform limited procedures on Clemson University's response to the noncompliance findings identified in our compliance audit described in the accompanying schedule of findings and questioned costs. Clemson University's response was not subjected to the other auditing procedures applied in the audit of compliance and, accordingly, we express no opinion on the response.

Report on Internal Control Over Compliance

Our consideration of internal control over compliance was for the limited purpose described in the Auditors' Responsibilities for the Audit of Compliance section above and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies in internal control over compliance and therefore, material weaknesses or significant deficiencies may exist that were not identified. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, as discussed below, we did identify certain deficiencies in internal control over compliance that we consider to be significant deficiencies.

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 a combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance. We consider the deficiencies in internal control over compliance described in the accompanying schedule of findings and questioned costs as items 2024-001 and 2024-002 to be significant deficiencies.


Our audit was not designed for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, no such opinion is expressed.

Government Auditing Standards requires the auditor to perform limited procedures on Clemson University's response to the internal control over compliance findings identified in our audit described in the accompanying schedule of findings and questioned costs. Clemson University's response was not subjected to the other auditing procedures applied in the audit of compliance and, accordingly, we express no opinion on the response.

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

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

We have audited the financial statements of the business-type activities and the aggregate discretely presented component units of Clemson University as of and for the year ended June 30, 2024, and the related notes to the financial statements, which collectively comprise the University’s basic financial statements. We have issued our report thereon, dated September 30, 2024, which contained unmodified opinions on those financial statements. Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the basic financial statements. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by the Uniform Guidance and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated in all material respects in relation to the basic financial statements as a whole.



CliftonLarsonAllen LLP

Atlanta, Georgia
September 30, 2024

Clemson University
Clemson, South Carolina
Schedule of Findings and Questioned Costs
For the year ended June 30, 2024

Section I. Summary of Auditors' Results

Financial Statements

1. Type of auditors' report issued: Unmodified
2. Internal control over financial reporting:
- Material weakness(es) identified? _____ yes x no
 - Significant deficiency(ies) identified? _____ yes x none reported
3. Noncompliance material to financial statements noted? _____ yes x no

Federal Awards

1. Internal control over major federal programs:
- Material weakness(es) identified? _____ yes x no
 - Significant deficiency(ies) identified? x yes _____ none reported
2. Type of auditors' report issued on compliance for major federal programs: Unmodified
3. Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)? x yes _____ no

Identification of Major Federal Programs

Assistance Listing Number(s)

Various
 10.025
 10.511
 93.354

Name of Federal Program or Cluster

Research and Development Cluster
 Animal Health and Disease Research
 Smith-Lever Extension Funding
 Public Health Emergency Response: Cooperative Agreement for Emergency Response: Public Health Crisis response

Dollar threshold used to distinguish between Type A and Type B programs:

\$ 3,000,000

Auditee qualified as low-risk auditee?

 x yes _____ no

Clemson University

Clemson, South Carolina

Schedule of Findings and Questioned Costs

For the year ended June 30, 2024

Section II. Financial Statement Findings

Our audit did not disclose any matters required to be reported in accordance with *Government Auditing Standards*.

Clemson University

Clemson, South Carolina

Schedule of Findings and Questioned Costs

For the year ended June 30, 2024

Section III. Findings and Questioned Costs - Major Federal Programs

2024 – 001: Improper Payroll Calculation

Federal Agency: U.S. Department of Energy

Federal Program Name: Research & Development Cluster

Assistance Listing Number: 81.049

Federal Award Identification Number: DE-SC0023385

Award Period: July 1, 2023 – June 30, 2024

Type of Finding: Significant Deficiency in Internal Control over Compliance, Other Matters

Criteria or specific requirement: Internal Control – Per 2 CFR section 200.303(a), a non-Federal entity must: Establish and maintain effective internal control over the Federal award that provides reasonable assurance that the non-Federal entity is managing the Federal award in compliance with Federal statutes, regulations, and the terms and conditions of the Federal award. These internal controls should be in compliance with guidance in “Standards for Internal Control in the Federal Government” issued by the Comptroller General of the United States or the “Internal Control Integrated Framework,” issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Compliance – Per 2 CFR § 200.403, except where otherwise authorized by statute, costs must meet the following general criteria to be allowable under Federal awards: (a) Be necessary and reasonable for the performance of the Federal award to be allocable thereto under these principles. (b) Conform to any limitations or exclusions set forth in these principles or in the Federal award regarding types or amount of cost items. (c) Be consistent with policies and procedures that apply uniformly to both federally-financed and other activities of the non-Federal entity. (d) Be accorded consistent treatment. A cost may not be assigned to a Federal award as a direct cost if any other cost incurred for the same purpose in like circumstances has been allocated to the Federal award as an indirect cost. (e) Be determined in accordance with generally accepted accounting principles (GAAP), except for state and local governments and Indian tribes only, as otherwise provided for in this part. (f) Not be included as a cost or used to meet cost sharing or matching requirements of any other federally-financed program in either the current or a prior period. (g) Be adequately documented.

Condition: The University incorrectly calculated payroll costs charged to the grant after an employee was double paid for the same work hours.

Questioned costs: \$400.

Context: This condition occurred for 1 out of 40 payroll costs selected for testing resulting in \$400 being incorrectly charged to the program.

Cause: An employee failed to accurately enter time worked into the university timekeeping system for the pay period 5/1/24 – 5/15/24. The employee reported the hours to their department contact on 5/29/24, which was after the pay period had closed and paychecks had already been processed. The department liaison contacted Kronos Support to have the hours added to the timecard retroactively. Kronos Support received confirmation from the employee that the missed hours could be added to the paycheck for 6/14/24.

Clemson University**Clemson, South Carolina***Schedule of Findings and Questioned Costs**For the year ended June 30, 2024*

During payroll processing for 6/14/24, Kronos Support added the missed hours to the employee's payline on 6/5/24. The department liaison also submitted a CU Special Pay for the same missed hours on 6/5/24. Due to the timing of each separate transaction, Kronos Support did not have visibility into the duplication of the hours. The department failed to identify the duplication during its review of payroll reports.

Effect: Expenditures may be incorrectly charged to the program.

Repeat Finding: No

Recommendation: We recommend that the institution strengthen its internal controls to ensure that expenditures are reviewed and adjusted for, if necessary, in a timely manner.

Views of responsible officials: Management acknowledges the finding.

Clemson University

Clemson, South Carolina

Schedule of Findings and Questioned Costs

For the year ended June 30, 2024

2024 – 002: Subrecipient Monitoring

Federal Agency: U.S. Department of Health and Human Services

Federal Program Name: Public Health Emergency Response: Cooperative Agreement for Emergency Response: Public Health Crisis response

Assistance Listing Number: 93.354

Federal Award Identification Number: NU90TP922168, NU90TP921992

Pass-Through Agency: South Carolina Department of Health and Environmental Control

Pass-Through Numbers: PH-2-533, CY-19-018

Award Period: July 1, 2023 – June 30, 2024

Type of Finding: Significant Deficiency in Internal Control over Compliance, Other Matters

Criteria or specific requirement: Internal Control – Per 2 CFR section 200.303(a), a non-Federal entity must: Establish and maintain effective internal control over the Federal award that provides reasonable assurance that the non-Federal entity is managing the Federal award in compliance with Federal statutes, regulations, and the terms and conditions of the Federal award. These internal controls should be in compliance with guidance in “Standards for Internal Control in the Federal Government” issued by the Comptroller General of the United States or the “Internal Control Integrated Framework,” issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Compliance - Per 2 CFR section 200.332(a), the subaward is to clearly identify to the subrecipient required information, including identification of whether the award is R&D.

Condition: The University incorrectly documented the subaward as a Research and Development grant to the subrecipient.

Questioned costs: None

Context: This condition occurred for 5 out of 5 subawards selected for testing.

Cause: Attachment 2 of the Federal Awards Terms and Conditions template of the FDP Cost Reimbursement Subaward includes a field that is pre-selected and defaults to the R&D selection, requiring the field to be unchecked for the subawards that are not classified as R&D.

Effect: The subrecipient may not be aware of certain award information in order to comply with federal statutes, regulations, and the terms and conditions of the award and properly classify its schedule of expenditures of federal awards.

Repeat Finding: No

Recommendation: We recommend the University strengthen its internal controls to ensure that subawards report the correct information.

Views of responsible officials: Management acknowledges the finding.



Single Audit Corrective Action Plan – Year Ended June 30, 2024

Finding 2024-001- Federal Award Programs Audits: U.S. Department of Energy - R&D Cluster – Assistance Listing No. 81.049

Finding: Improper Payroll Calculation

Recommendation: We recommend that the institution strengthen its internal controls to ensure that expenditures are reviewed and adjusted for, if necessary, in a timely manner.

Controller's Office

Clemson University
391 College Avenue, Suite 302
Clemson, SC
29634-5313

P 864-656-2000

F 864-656-5600

TDD 864-656-7453

Department's Response: Management acknowledges the finding.

Corrective Action Plan: The Payroll Department has taken immediate action to develop additional safeguards to avoid duplicate pay. When Central Payroll adds pay to a payline, we will notify the requestor to inform them of this action and ask that they review their payline for accuracy. This should trigger a response from the requestor if they had also added the missing hours via a CU Special Pay.

Additionally, as of 06/21/2024, the Late Timesheet option was turned off on CU Special Pay to strengthen controls. Individuals now contact payroll@clermson.edu for assistance. Once contacted, the payroll / timekeeping team will update the timecard and ensure the missed pay is added to the next payroll cycle, assuming an emergency / off-cycle check is not needed.

The College of Engineering and Applied Science (CECAS) will take action to strengthen internal controls to ensure accuracy and compliance. We will establish clear procedures to verify employee payroll data via paylines, as well as cross checking with CU Payroll to ensure changes are properly documented and authorized. We will provide ongoing training for departmental payroll staff on best practices and compliance requirements.

Anticipated Completion Date: September 17, 2024

Person Responsible for Corrective action: Central Payroll - Ami Hood,
Payroll Director; CECAS - Keri Cortese, Director of Procurement and Payroll
Operations

Contact/Responsible Party: Ami Hood, Payroll Director

Contact Information: hooda@clermson.edu



Single Audit Corrective Action Plan – Year Ended June 30, 2024

Finding 2024-002- Federal Award Programs Audits: U.S. Department of Health and Human Services - Public Health Emergency Response – Assistance Listing No. 93.354

Finding: Subrecipient Monitoring

Recommendation: We recommend the University strengthen its internal controls to ensure that subawards report the correct information.

Controller's Office

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29634-5313

P 864-656-2000
F 864-656-5600
TDD 864-656-7453

Department's Response: Management acknowledges the finding.

Corrective Action Plan: Action taken in response to finding: We have 26 active awards that would be non-R&D. Grants and Contracts Accounting (GCA) is currently reviewing each to verify if all had check boxes checked as R&D on Attachment 2 of the Federal Awards Terms and Conditions template of the FDP Cost Reimbursement Subaward. Once we have the impacted population, GCA will issue a modification for those to draw attention to the error. In addition, GCA will ensure internal procedures are updated to review this field and verify proper identification prior to subaward execution.

Anticipated Completion Date: September 30, 2024

Person Responsible for Corrective action: Tracy Walters, Director of Grants and Contracts

Contact/Responsible Party: Tracy Walters, Director of Grants and Contracts

Contact Information: trwalte@clemson.edu.



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