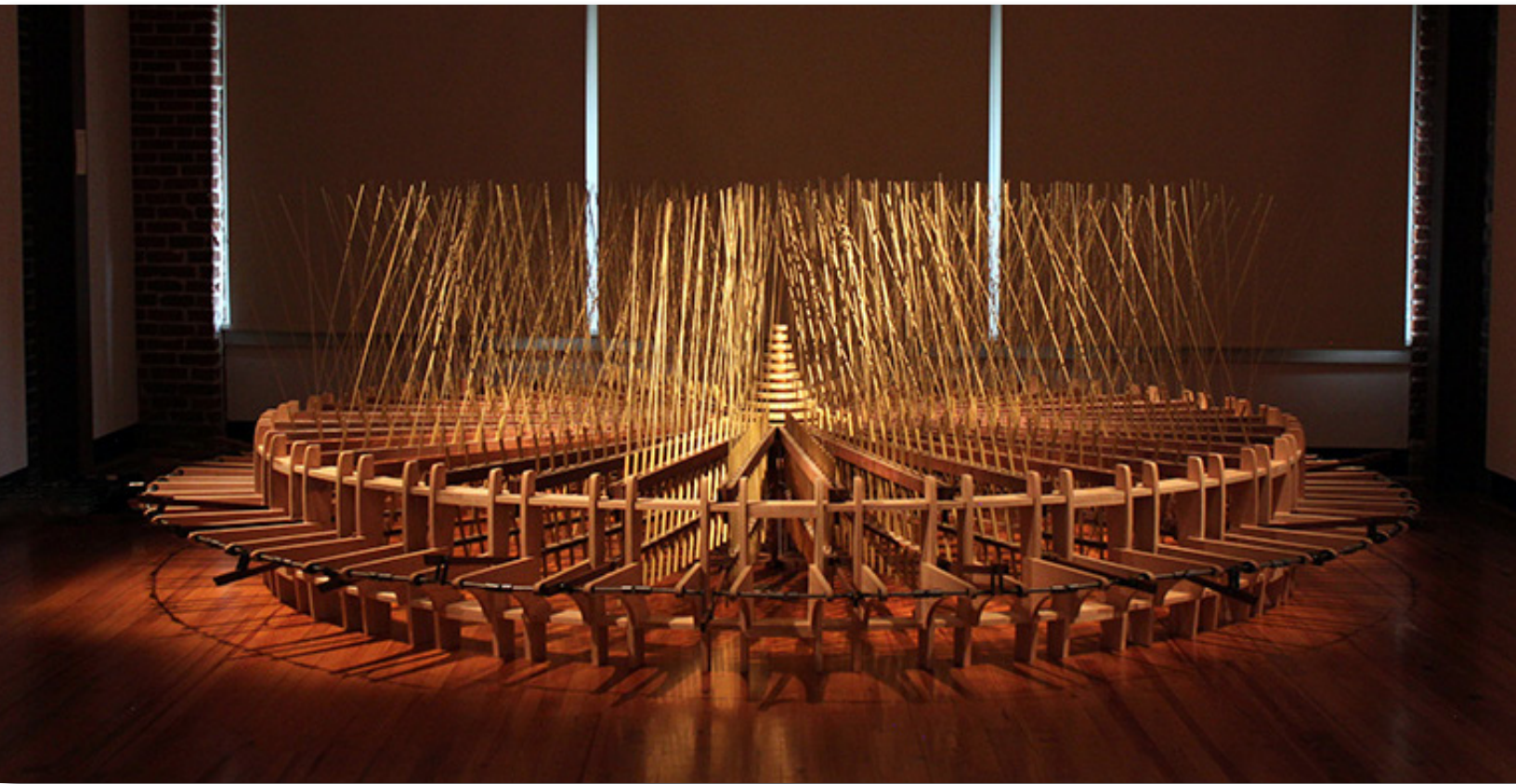


Office of Research & Engagement
University of Tennessee
3rd Quarterly Research Report
for FY 2016
Cumulative for
July 1, 2015 - March 31, 2016



Locus by John Douglas Powers.
Powers was named a 2016 Guggenheim Fellow in March



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

OFFICE OF RESEARCH &
ENGAGEMENT

Office of Research & Engagement • University of Tennessee

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A Message from the AVCRD

In the third quarter of FY16, the Office of Research and Engagement has helped foster many significant and strategic research wins, and more details about these contributions are listed in the section below.

I would like to highlight several of the wonderful awards that were received in this quarter. UT celebrated eighteen faculty awardees including a new National Academy of Engineering member (Yilu Liu), an American Council of Learned Societies fellow (Megan Bryson), a National Humanities Center fellow (Shellen Wu), four Fulbright fellows (Sarah Eldridge, Micah Beck, Carol Tenopir, and Songning Zhang), a Guggenheim fellow (John Powers), and two NEH Summer Stipend awards (Katy Chiles, Hilary Havens).

UT faculty were awarded a total of eight 2016 NSF CAREER grants: Wei Gao, Jon Hathaway, Donatello Materassi, Lucas Platter, Andrew Steiner, Kai Sun, Cong Trinh, and Christopher Wright. This is a record number of CAREER awards for UT, and I thank all the staff who directly and indirectly assisted in preparing winning submissions.

As always I invite your feedback on anything you would like to discuss involving the Office of Research and Engagement, your research concerns and interests, and aspirations you may have for future research activities at UT.



A handwritten signature in blue ink that reads "Janet Nelson". The signature is fluid and cursive.

Janet Nelson

Associate Vice Chancellor for Research Development

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Quarterly Wins

Biological Safety: The Biosafety Program effectively communicated two new policies, one outlining stakeholder roles and responsibilities and one covering biological hazards in teaching laboratories to stakeholders. The office assisted with performance verification testing of mechanical systems and containment assessments for the renovated biosafety level-3 laboratory. Staff completed a ‘train-the-trainer’ course for shipping biological hazards in commerce. The office trained over 337 people on various biosafety topics. Finally, a new two-phase laboratory audit program was rolled out to bolster lab biosafety practices and compliance awareness; the two elements are conducted roughly six months apart.

Centers and Institutes:

JIAM: As the Joint Institute for Advanced Materials moves into the new building at Cherokee Farm, most of the scientists with labs on the ground floor are now setting up labs in the new space. Phase II construction continues. The lower two floors opened in February, and bus service to the Cherokee Farm commenced in March.

JICS: The Joint Institute for Computational Sciences is a founding member of the new South Big Data Regional Innovation Hub jointly housed at Georgia Tech and the University of North Carolina at Chapel Hill, and is part of the NSF’s Big Data Regional Innovation Hubs, which address regional challenges through data analysis. The National Institute for Computational Sciences (NICS), was chosen in November as the 13th member of the integrated Rule-Oriented Data System (iRODS) consortium.

JINS: Liyuan Liang joined the Joint Institute for Neutron Sciences as a Distinguished Research and Development Scientist with the Biology and Soft Matter Division of Oak Ridge National Laboratory (ORNL). Liang is a Fellow of the American Association for the Advancement of Science. She joined JINS to pursue her interest in the application of neutrons in environmental research.

NIMBioS: NIMBioS Evaluation Services reached its one-year anniversary of providing external evaluation services for STEM research and education projects. In collaboration with departments across UT, NES has developed a portfolio of six grants totaling \$1,194,235. NIMBioS Director Colleen Jonsson recently received a three-year NSF grant to develop mathematical models that capture the early immune response within an individual during infection.

Community Engagement and Outreach: The Carnegie Community Engagement Writing Team submitted a white paper of recommendations for the VolVision 2020 strategic plan. The Carnegie white paper was a key reference for a retreat of UT’s state-wide Outreach and Engagement Community of Practice which is working on a refresh of the System’s strategic plan. OCEO also published the pilot edition of “Partnering for Broader Impacts: A Guide for UT Investigators.”

Faculty Development Team: The FDT helped launch the Appalachian Community of Scholars and supported the Cancer Community of Scholars’ second Cancer Research Symposium. The team coordinated a visit by a program officer from the Fulbright Faculty Fellowship program who met individually with 11 UT faculty members. In addition, the team helped with the preparation of many award and grant applications highlighted in the Message from the AVCRD above.

Federal Relations: Wei Gao, professor of electrical engineering and computer science, received a Defense University Research Instrumentation Program (DURIP) award, and Ed Perfect, professor of earth and planetary sciences, received an Army Research Office award. Federal Relations arranged for faculty to discuss potential joint research projects with representatives from Marshall Space Flight Center. Three such projects are now in various stages of planning. The Army Research Laboratory (ARL) is working with several faculty members to prepare a Cooperative Research and Development Agreement (CRADA) between ARL and UT.

Human Research Protection Program: HRPP continues to expand its provision of personalized support to researchers and to provide monthly tips in its newsletter. The average review time for Institutional Review Board (IRB) submissions was six days, despite a significant increase in submission volumes: January and February averaged eight submissions per day; March averaged twelve per day. The IRB has identified 52 Public Use Data Sets using human subjects do not require review prior to research use.

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Office of Sponsored Programs: OSP hired Jean Mercer as the new assistant vice chancellor for research and director of sponsored programs, and recruited two individuals for the vacant award coordinator positions. Staff provided training for the new proposal and awards management system, Cayuse SP.

Radiation Safety: The office is updating UT's inventory of Class IIB and IV laser systems. Faculty with any recently purchased laser systems should contact the laser safety program to register their units and register for online training. To contact Radiation Safety, send an email to radiationsafety@utk.edu.

Research Development Team: NSF invited a UT research team to submit a major ERC proposal and the RDT is working with the researchers to put forth a highly competitive submission. RDT also assisted with the submission of two NSF Research Traineeship (NRT) proposals and the NSF ADVANCE proposal this quarter.

Research Informatics: The team continued collecting research activity data to measure UT's performance against certain peer institutions. Among data points collected were NSF Higher Education Research and Development (HERD) research expenditures, institutional proposal and award total value and total count, and institutional publication and citation data from such sources as Thomson and Reuters' Web of Science and Elsevier's Scopus. The team also conducted data collection and analysis of the top performing faculty in terms of their publication, citation record, and research funding activity.

Research Initiatives: UT's first-time submission to The Greenwall Foundation resulted in an invitation to Adam Cureton, assistant professor of philosophy, to interview with the Faculty Scholars Program Committee in Houston, Texas.

Research Integrity: The Office of Research Integrity participated in a task force composed of members from the Office of the Provost, the Graduate School, and University Libraries. This task force finalized a report assessing the growing number of plagiarism allegations and related resources on campus. The office also led efforts with the Federal Demonstration Partnership to increase university coordination with federal sponsors while reducing faculty burdens. Research Integrity also led efforts across campus to complete a five-year refresh of our institutional risk assessment.

Strategic Investments: The FY16 Summer Graduate Research Assistantship awards, totaling \$93,600 in funding support, were announced in March. ORE is pleased to be supporting 26 summer graduate students using the Scholarly Activity in Research Incentive Fund (SARIF) investment.

Sigma Xi: The UT Knoxville Chapter hosted visiting Fulbright Scholar Eddy Nurtjahya, associate professor of biology at Universitas Bangka Belitung in Indonesia, in February. In March, the chapter held a panel discussion about graduate research funding from the NSF Graduate Research Fellowships and Doctoral Dissertation Improvement Grants.

Undergraduate Research: The office awarded 30 summer undergraduate research internships and took seven students to Nashville to present their research during Posters at the Capitol. We continued our weekly student seminar series, responded to faculty requests for in-class presentations, and participated in information sessions for the Office of Career Development, Multicultural Mentoring Program, College of Agricultural Sciences and Natural Resources, Arts & Sciences Sophomore Step-up, Haslam Scholars, and the Baker Center Living and Learning Community. We also supported several faculty writing grants that included undergraduate research funding.

UT Core Facilities Program: The program continues to promote the growth of resources for our research community with the addition of two new UT Core Facilities. The Geoarchaeology and Paleoenvironmental Services Center (GPSC) provides investigators with access to soil, sediment, and microartifact and ecofact analyses. Researchers now have access to the JIAM X-Ray Diffraction Facility (JIAM XRD), which provides both assisted and unassisted access to a variety of diffraction methods. JIAM XRD has already made significant contributions to developing more efficient solar cells as reported in an article recently featured in Nature Energy (Burst, J. M. et al. Nature Energy 1, 16015 (2016)).

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Proposals, Awards, and Expenditures

College/Center/ Institute	Proposals Submitted				Awards Received				Estimated Total Research Expenditures (HERD ¹)	
	No.	% No. Incr. Over FY 15	Amount Requested	% \$ Incr. Over FY 15	No. ³	% No. Incr. Over FY 15	Amount Received	% \$ Incr. Over FY 15	Amount Expended	% \$ Incr. Over FY 15
College of Architecture and Design	3	-25.0%	\$94,940	-88.8%	5	-28.6%	\$238,970	-22.0%	\$450,823	-8.9%
College of Arts and Sciences	359	-10.7%	\$107,994,631	-21.3%	286	-2.1%	\$23,057,465	-2.4%	\$25,822,879	3.9%
Haslam College of Business	20	-20.0%	\$7,552,699	-2.2%	25	25.0%	\$3,169,728	-23.9%	\$5,869,735	-13.5%
College of Communication and Information	20	-13.0%	\$8,523,106	199.3%	9	-40.0%	\$909,083	-33.4%	\$1,419,503	-21.8%
College of Education, Health, and Human Science	79	-1.3%	\$34,603,135	10.0%	38	-2.6%	\$10,476,309	0.8%	\$3,469,702	0.8%
College of Engineering	532	0.4%	\$166,323,020	2.9%	472	25.2%	\$46,063,989	33.4%	\$51,752,735	6.1%
College of Law	1	N/C*	\$116,117	N/C*	1	0.0%	\$15,000	150.0%	\$7,067	-86.2%
College of Nursing	14	-12.5%	\$5,692,990	4.6%	4	-60.0%	\$184,718	-77.5%	\$564,721	-28.9%
College of Social Work	27	-6.9%	\$23,291,618	-11.3%	17	-15.0%	\$1,566,403	-41.7%	\$585,364	-39.2%
Research Centers and Institutes	154	14.1%	\$36,690,528	-45.5%	220	22.2%	\$13,196,859	-32.0%	\$18,382,000	-23.9%
UT Space Institute	45	25.0%	\$7,653,644	12.4%	23	53.3%	\$1,631,244	134.2%	\$2,782,500	34.8%
Other ²	13	0.0%	\$2,725,610	-31.5%	20	53.8%	\$12,390,985	427.3%	\$7,379,407	-11.6%
Total	1267	-2.0%	\$401,262,037	-11.1%	1120	13.2%	\$112,900,753	12.5%	\$118,486,436	-3.3%

Notes

1. HERD - Higher Education Research and Development Survey, the successor to the Survey of Research and Development Expenditures at Universities and Colleges.
2. Other Colleges, Centers or Institutes - This field captures any research proposal, award, and expenditure not included in the categories above. Not all research expenditures in this category have a corresponding proposal/award.
3. The Number of Awards Received represents the cumulative number of funding award increments. One project may receive multiple funding awards.

* Per cent increase not calculable.

How Quarterly Research Summary Data are Derived

Each Quarterly Research Summary is a fiscal year-to-date comparison.

Data depicting colleges and research centers and institutes are presented to show trends within each unit. Award data are pulled from Cayuse SP. Proposal data are pulled from TERA-PAMS for proposals submitted prior December 28, 2015. For proposals submitted after December 28, 2015 are pulled from Cayuse SP. Research expenditure data are from IRIS.

In order to ensure consistency of the Office of Research and Engagement reports, all quarterly and annual report award selection is based on the Award Effective Date (beginning of project funding). The proposal selection is based on the Proposal Approval Date.

There are occasionally variations in the numbers reported for each quarter as information is updated into Cayuse SP and IRIS on a daily basis. The annual report will represent the final amounts for that fiscal year.

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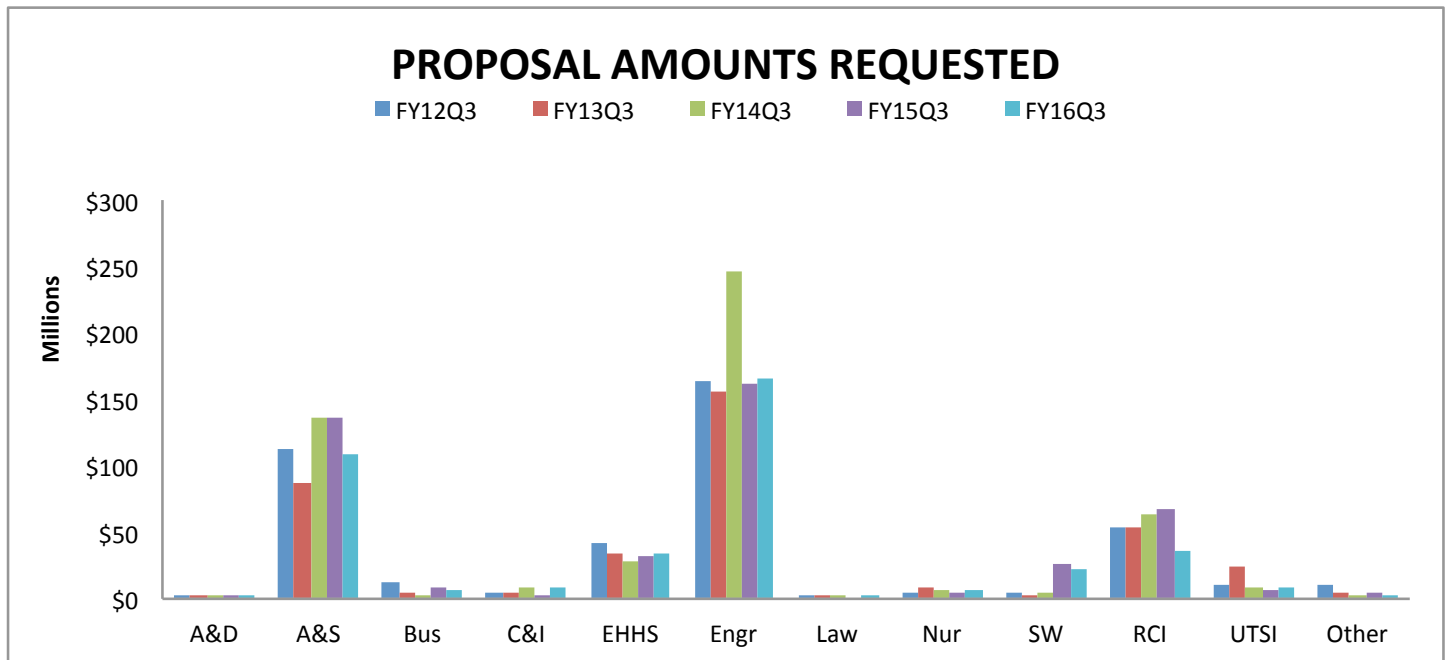
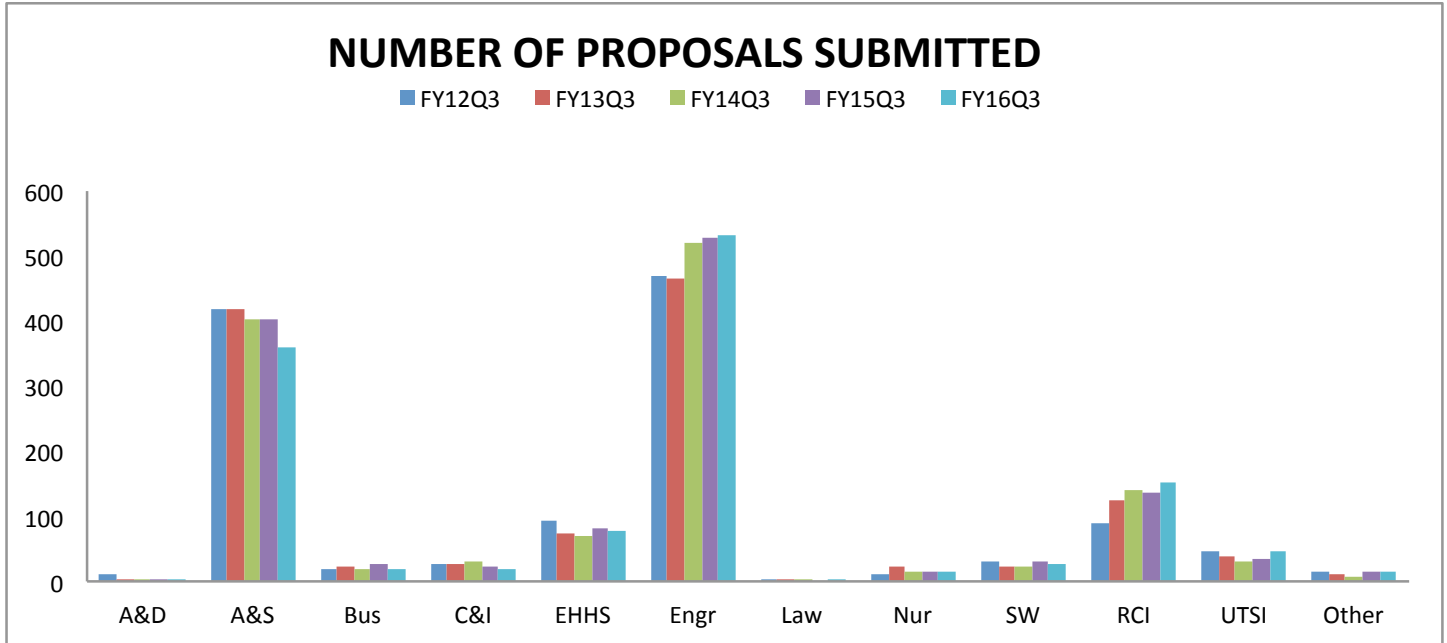
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Top 20 Awards (by dollar value)

Investigators (Primary PI First)	Award Admin Department	Project Title	Sponsor	Anticipated Amount
	PI Home Department			
Eighmy, Thomas; Penumadu, Dayakar; Babu, Sudarsanam	Research Administration	Institute for Advanced Composites Manufacturing Innovation	Collaborative Composite Solutions Corp.	\$11,184,651
	Research Administration; CEE; MABE			
Cormier, Thomas; Read, Kenneth; Sorensen, Soren	Physics	ALICE Barrel Tracking Upgrade	Dept. of Energy	\$10,965,000
	Physics			
Tolbert, Leon; Blalock, Benjamin; Wang, Fei; Costinett, Daniel	Center for Electric Power	Design-Oriented Education and Hands-on Training with WBG Power Electronics for the Next Generation Power Engineering Workforce	DOE - Office of Energy Efficiency and Renewable Energy	\$2,655,747
	EECS			
Melcher, Charles; Zhuravleva, Mariya; Koschan, Merry	SMRC	Operating Agreement of the Scintillation Materials Research Center	Siemens	\$2,500,000
	SMRC; MSE			
White, Connie	CLEE	Tennessee State Personnel Development Grant	TN Dept. of Education	\$2,332,268
	CLEE			
Dongarra, Jack; Mucci, Philip; Danalis, Antonios; McCraw, Heike	Distinguished Research Professor - EECS	SI2-SSI: Collaborative Proposal: Performance Application Programming Interface for Extreme-scale Environments (PAPI-Ex)	NSF	\$2,126,446
	Distinguished Research Professor - EECS			
Wirth, Brian; Xu, Donghua; Zinkle, Steven	Nuclear Engineering	A Multiscale Investigation of the Mechanisms Controlling Materials Degradation	DOE - Office of Science	\$1,930,897
	Nuclear Engineering			
McFadden, Ronald	Educational Advancement Program	Student Support Services	Dept. of Education	\$1,680,460
	Educational Advancement Program			
Ripp, Steven; Smith, Jeremy; Simpson, Michael; Trinh, Cong; Hyatt, Philip	JIBS	BioEnergy Science Center, University of Tennessee, Phase II	DOE - Oak Ridge National Laboratory	\$1,668,291
	JIBS			
Grzywacz, Robert	Physics	Support for Joint Institute for Nuclear Physics and Applications	DOE - Oak Ridge National Laboratory	\$1,494,370
	Physics			
Hay, Jessica	Psychology	Infant statistical learning: Resilience, longevity, and specificity	HHS - National Institute of Child Health and Human Development	\$1,309,975
	Psychology			
Ma, Zhongguo	CEE	Study of Alkali-Silica Reaction Effects on Stressed-Confinement Concrete Nuclear Thick Structures	DOE - Oak Ridge National Laboratory	\$1,280,802
	CEE			
Rose, Garrett; Plank, James; Dean, Mark	EECS	Development of a Memristive Dynamic Adaptive Neural Network Array (mrDANNA)	DOD - Air Force Research Laboratory	\$1,217,929
	EECS			
Holleman, Jeremiah; Blalock, Benjamin	EECS	Nano-Watt Analog Signal Processing for NINA: N-zero Integrated aNAlog classifier	Honeywell	\$1,152,968
	EECS			
Kamyshkov, Yuri; Spanier, Stefan; Handler, Thomas; Efremenko, Yuri	Physics	Elementary Particle Interactions	DOE - Office of Science	\$1,100,000
	Physics			
Hillyer, Sarah; Huffman, Ashleigh	Admin-EHHS	Better World: Empowering Global Change Agents through Sports	Department of State	\$1,030,000
	Admin-EHHS			
Greene, Geoffrey; Fomin, Nadia	Physics	Experimental Weak Interactions With Pulsed and Continuous Cold Neutrons	US Dept. of Energy	\$1,020,000
	Physics			
Cole, Gregory; Gregor, Jens	ISSE	IRNC: AMI: The InSight Advanced Performance Measurement System	NSF	\$1,000,000
	ISSE; EECS			
Wood, Richard	Nuclear Engineering	Development and Demonstration of a Model Based Assessment Approach for Qualification of Embedded Digital Devices in Nuclear Power Applications	DOE - Idaho National Laboratory	\$988,269
	Nuclear Engineering			
Zawodzinski, Thomas	Chemical Engineering	Electrolyte Materials and Physical Chemistry for Electrochemical Devices	DOD - Office of Naval Research	\$934,476
	Chemical Engineering			

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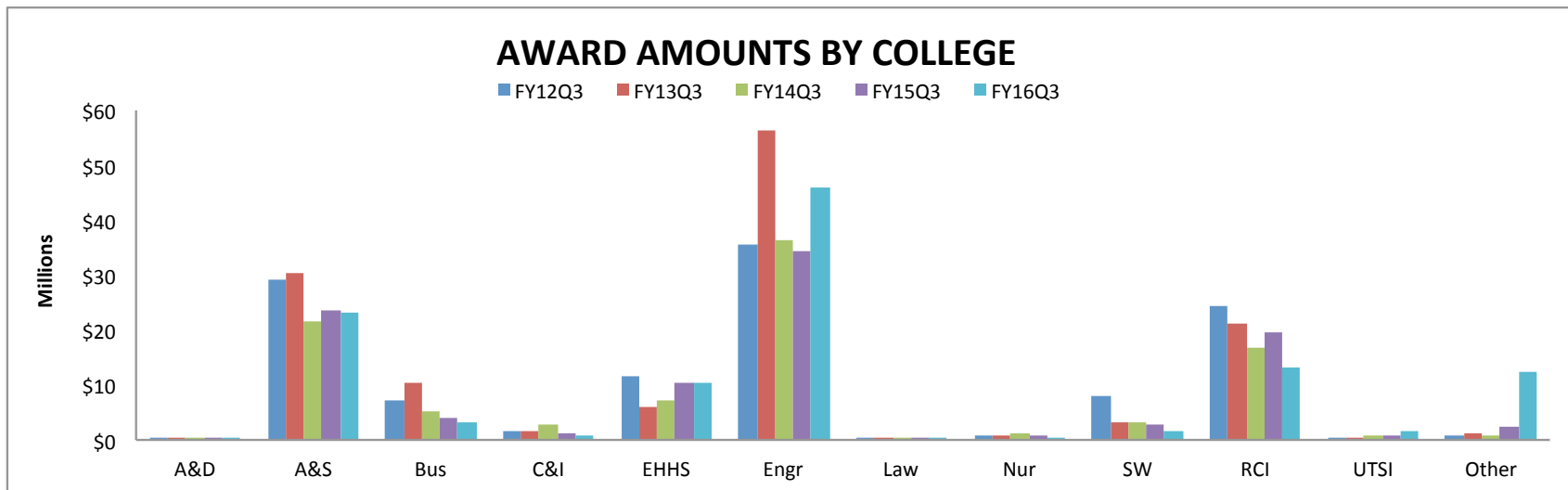
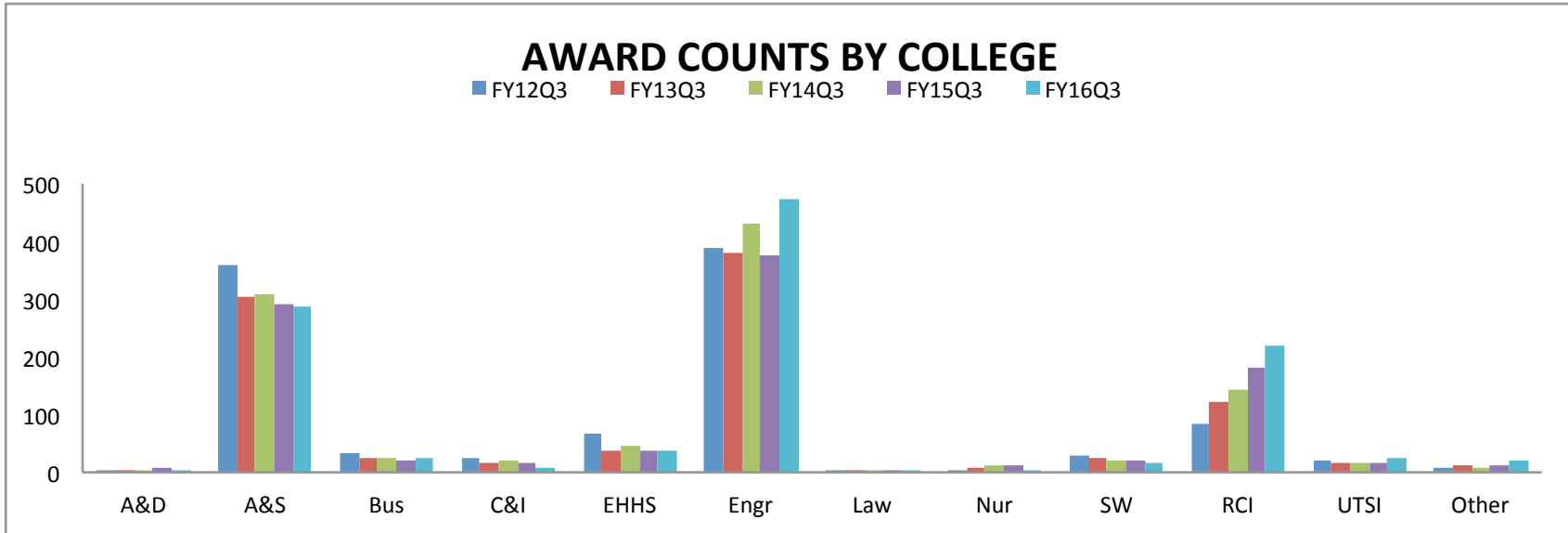
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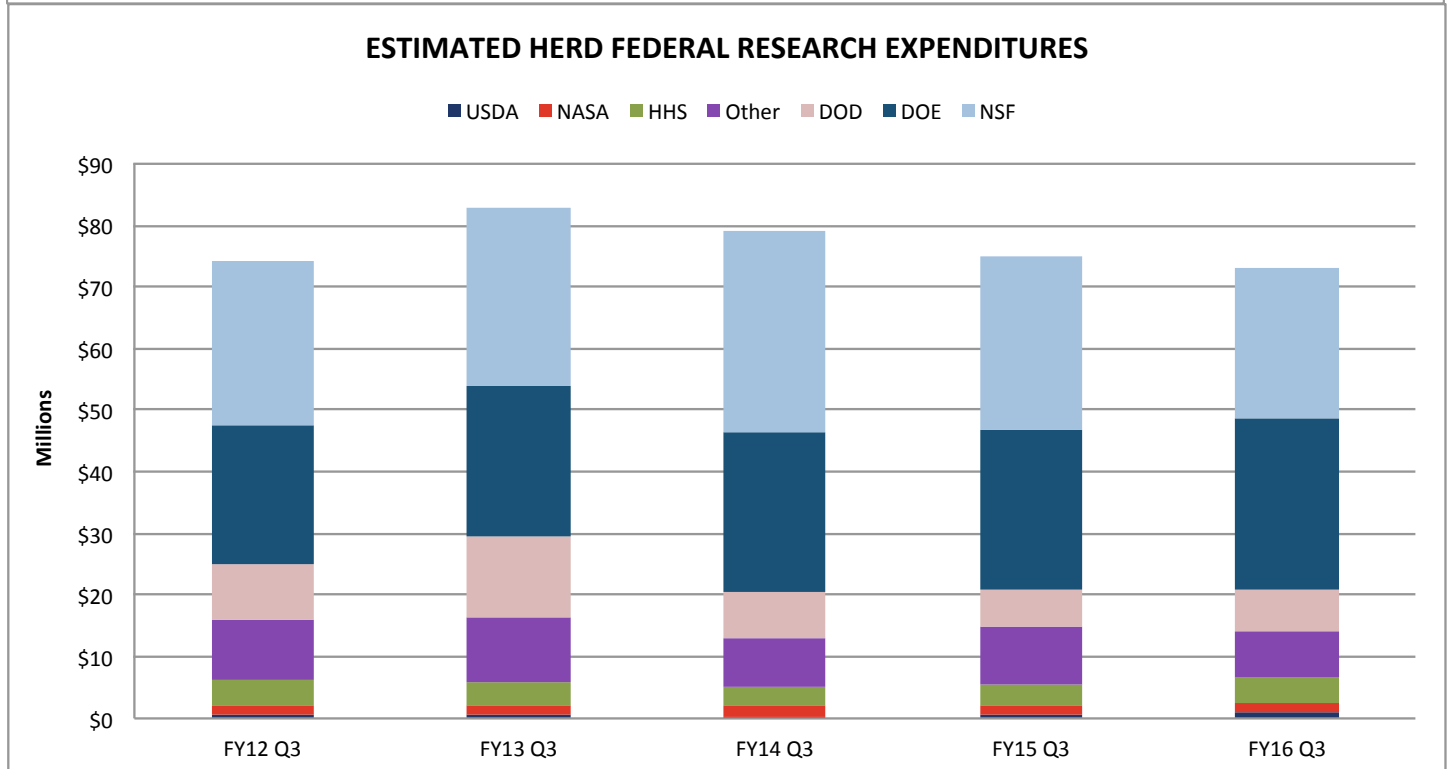
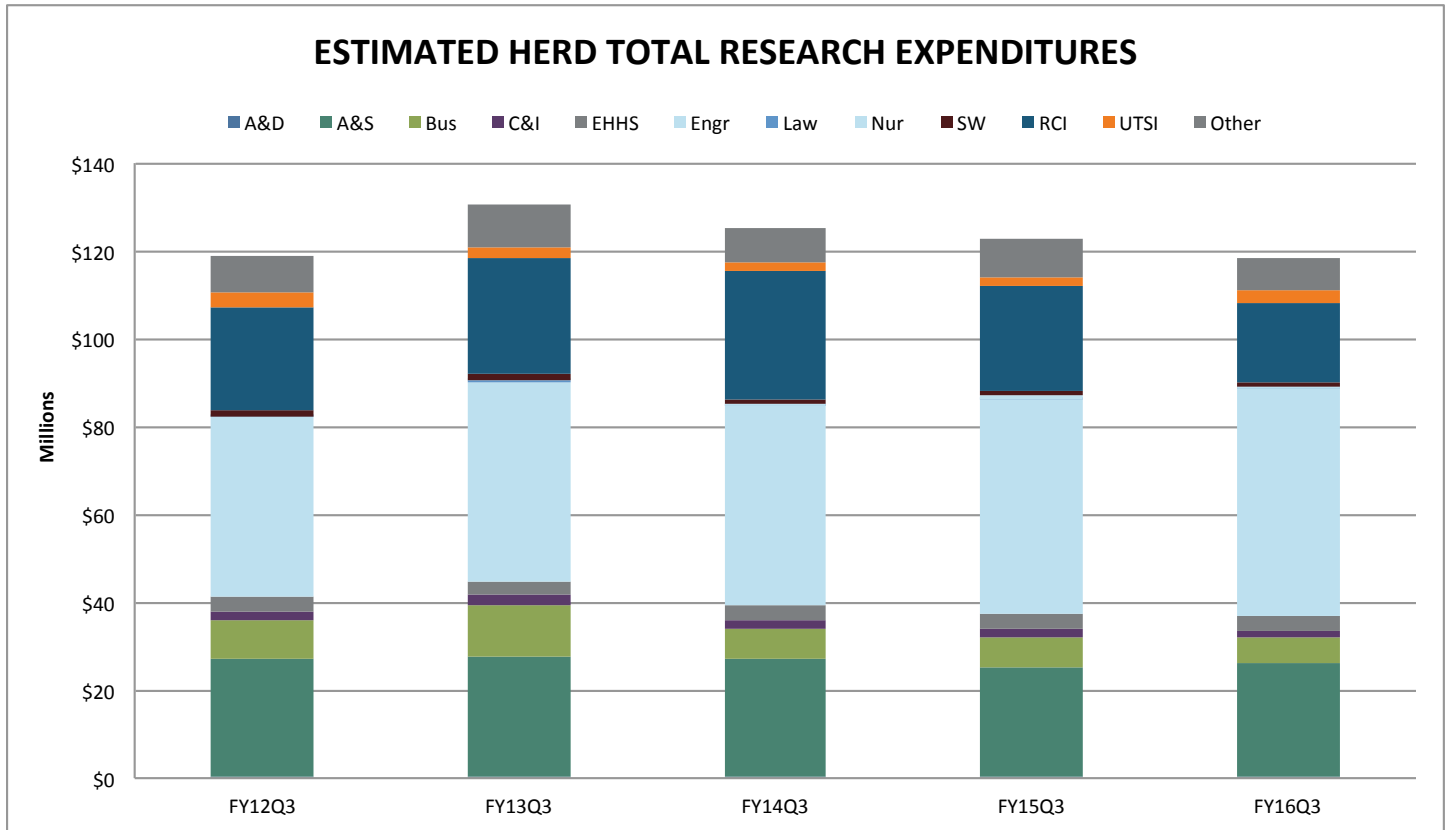
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