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Research and Innovation Annual Report

Research and Innovation

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2017

## Annual Report, 2016-2017

University of Arkansas, Fayetteville. Office of the Vice Provost for Research and Innovation

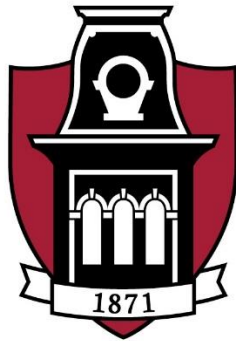
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# UNIVERSITY OF ARKANSAS

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## Research & Innovation

### Annual Report 2016 – 2017



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## Executive Summary

**VPRI:** The Office of the Vice-Provost worked with Faculty Senate to increase the size of Research Council to provide more faculty insight. The Vice-Provost chaired a faculty team to define the Guiding Priority of “Enhancing Research and Discovery”. An Office of Undergraduate Research was created with Fred Spiegel as Director. An Office of Industry Research was created with Cynthia Sides as Director.

**RSSP:** The Office of Research Support and Sponsored Programs assisted with the development and submission of over 917 new proposals and received a total of 420 awards. The total dollar amount of administered by RSSP was \$84,509,055, a slight decrease over FY2016. With the Division of Agriculture receiving \$18,556,204 in external awards, the total external support for sponsored activities in FY2017 was \$103,065,259, an overall increase of 1.9% over the previous year.

**Research Compliance:** Fiscal year 2016-17 was a busy and productive year for the Office of Research Compliance. In addition to the normal activities of the unit, many new changes have taken place. Rosemary Ruff retired as Director and Robert Beitle is serving as Interim Director. Our IACUC vet John Hahn retired and has been replaced with Dr. Kate Williams. Our former CLAF Manager, Anthony Munn, took another position and has been replaced with Tina Poseno. Major projects include the transfer of IRB functions to RazorGrant and assisting Engineering in the expansion of the small animal facility at ENRC.

**Tech Ventures:** TechVentures received 29 invention disclosures, filed 34 patent applications and received 10 issued patents. For fiscal year 2017, licensing activity was slightly higher than last year with 13 negotiated licenses/options/agreements and the formation of two start-up companies. Licensing revenues of \$70,036 and patent cost reimbursements of \$186,804 were realized.

**Entrepreneurship:** The Office of Entrepreneurship and Innovation hosted our sixth three-day commercialization retreat, with 75 faculty and administrators participating. OEI launched a successful Social Innovation Challenge in Spring 2017. We received a five-year, \$250,000 NSF grant to become an I-Corps Site. This will enhance our successful efforts to build the entrepreneurship ecosystem.

**Space Center:** New external funding from grants routed through SCTR totaled \$2,587,000. Combined with \$1,772,000 of previous external funding that remained in effect in 2016, it gave the Center over \$4,359,000 of external funding in effect during the year.

**Arkansas Press:** Net sales increased 12% over FY’16, to \$413,062. The Press continues its foray into digital book and rights platforms. E-book sales totaled \$38,999 for the year, up from \$33,426 in FY’16. The Press secured grants and subsidies to support the publication of ten new book projects. Grants and subsidies awarded for the year exceeded \$82,000.

**HPCC:** The AHPCC provided 50M core hours to over 240 active users across five UA colleges and units (ENGR, ARSC, AFLS, GRAD, & VPRED). The active users consist of 51 UAF project leaders in 21 departments, researchers from UALR, ASU, UAMS, and collaborators from 9 other external institutions. AHPCC computing, storage and networking resources along with support efforts through training, workshops and online help resources support more than \$60M in active extramural research grants and contracts.

**Office of Scholarly Communications:** [ScholarWorks@UARK](mailto:ScholarWorks@UARK), showcases the research, scholarship, and creative work of the UA community. During FY 2017, the number of items in ScholarWorks@UARK increased by 361% (6,186 in June ’17 compared to 1,715 in June ’16). Usage also rose significantly, with a 461% increase in the number of downloads (176,627 for FY17 compared to 38,300 for FY16) and a 323% increase in the number of hits (25,441 for FY17 compared to 7,878 for FY16).

## Office of the Vice Provost for Research and Innovation

The Chancellor's Eight Guiding Priorities included "Enhancing Research and Discovery". The Vice-Provost led a faculty team to develop up to ten action items and metrics for this guiding priority. The team provided the Chancellor and Provost with a report on its discussions which were used by the Provost to develop the Strategic Plan action items for next fiscal year.

There were many staff changes in the Office of the Vice-Provost in FY17. Rosemary Ruff, Director of Research Compliance, retired. Bob Beitle is serving as the interim director while a nationwide search is conducted. The Office of Industry Engagement was created to continue outreach to industries in the state as well as grow our industry engagement nationwide. Cynthia Sides was hired as the director to continue and expand the work that she started as director of NANO's IGNITE program. An Office of Undergraduate Research was created to encourage more students, especially those not in the Honors College, to engage in research. Data shows that conducting undergraduate research helps with retention and graduation rates.

The third annual Research Camp was held in collaboration with the Vice-Provost for Faculty Affairs. The two-day program offered 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> year tenure-track faculty an opportunity to learn more about conducting research at the University of Arkansas.

The Vice-Provost for Research and Innovation and the Dean of the Graduate School and International Education continue to expand their development outreach as part of Campaign Arkansas. Several gifts have been received for Entrepreneurship and the University Press. Other gifts are in process.

The Office developed the list of top federal legislative research priorities. The list was converted to a book which was provided to our federal delegation during a visit by Chancellor Steinmetz, VC Government Relations Massanelli, Provost Saxena, and VP Rankin.

A Business Process Improvement workshop was conducted in December to improve the grant proposal process. The initiative was to do a 360 review of our processes to ensure that we were processing proposals and awards in an efficient manner. Workshop participants included faculty, RSSP, Research Accounting, Finance, HR, and VPRI leadership. On-going discussions were held to improve the process.

## Research and Sponsored Programs

The Office of Research Support and Sponsored Programs (RSSP) assisted with the development and submission of over 917 new proposals, exclusive of continuation requests and no-cost extensions, and received a total of 420 awards\* from various sponsors during FY2017. The total dollar amount of new sponsored awards administered by RSSP for FY2017 was \$84,509,055. This represents slight decrease of \$1,079,809 over FY2016. The Division of Agriculture administered new research support in the amount of \$18,556,204. This represents an increase of \$3,021,683 over FY2016. As shown in Table 1, the total external support for sponsored activities was \$103,065,259, an overall increase of \$1,911,874, or 1.9%, over the previous year.

The composition of awards was \$60,253,323 (71.3%) from federal sources, \$13,756,152 (16.3%) from state sources, \$6,514,644 (7.7%) from foundations, \$3,378,954 (4.0%) from industry partners, and \$605,982 (.72%) from other sources. This represents a 2.2% increase in funding by federal sources, a slight (3.55%) decrease in state funding, and a more than doubling of foundation funding (67.1%). Combined, this represents an increase in overall funding and is in accordance with our strategic plan.

## Decade Summary of Awards

Unit	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017
ADMIN	\$5,118,183	\$4,130,794	\$4,148,068	\$6,521,614	\$5,297,357	\$4,228,831	\$3,882,716	\$4,233,179	\$5,247,482	\$5,229,340	\$15,416,514
AFLS	\$13,696,441	\$1,635,858	\$2,650,574	\$3,257,783	\$3,529,599	\$4,406,029	\$2,611,206	\$54,536	\$19,628	\$244,072	\$548,952
ARDO	\$1,043,038	\$586,961	\$855,246	\$468,085	\$191,493	\$95,720	\$33,825	\$156,500	\$504,208	\$324,361	\$173,795
ARSC	\$17,220,638	\$19,891,658	\$21,308,726	\$21,858,369	\$18,666,359	\$14,662,942	\$13,438,270	\$17,553,592	\$13,730,043	\$15,565,593	\$18,534,089
DREX	\$-	\$14,295,088	\$17,357,118	\$18,032,980	\$22,044,008	\$21,212,954	\$18,346,099	\$22,521,867	\$17,595,242	\$17,643,386	\$20,950,352
EDUC	\$6,368,064	\$7,372,031	\$7,176,954	\$8,698,295	\$8,226,951	\$11,338,163	\$14,148,152	\$16,827,761	\$24,005,168	\$30,091,417	\$24,464,064
ENGR	\$10,992,697	\$17,935,215	\$8,755,641	\$19,326,484	\$15,474,529	\$10,528,923	\$9,981,270	\$16,905,877	\$17,302,497	\$28,721,763	\$19,008,103
GRAD	\$1,527,150	\$436,831	\$649,833	\$3,477,614	\$490,240	\$348,475	\$232,121	\$200,000	\$-	\$46,000	\$-
HNRC	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
LAW	\$117,853	\$87,529	\$11,000	\$39,744	\$39,412	\$39,744	\$50,000	\$528,025	\$315,601	\$2,144,098	\$1,919,899
MULN	\$-	\$-	\$-	\$-	\$-	\$5,590	\$152,399	\$70,000	\$83,160	\$86,066	\$-
VPRS	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$252,389	\$588,961	\$637,085	\$846,021
WCOB	\$1,004,007	\$918,644	\$1,197,457	\$618,478	\$640,988	\$1,868,823	\$466,686	\$463,465	\$362,996	\$420,204	\$1,203,470
<b>Total</b>	<b>\$57,088,071</b>	<b>\$67,290,609</b>	<b>\$64,110,617</b>	<b>\$82,299,446</b>	<b>\$74,600,936</b>	<b>\$68,736,194</b>	<b>\$63,342,744</b>	<b>\$79,767,191</b>	<b>\$79,754,986</b>	<b>\$101,153,385</b>	<b>\$103,065,2</b>

\*This count reflects a change in methodology that will be used going forward in which external funding that is awarded to the University and subsequently dispersed for individual projects is counted as one project.

## Research Compliance

Fiscal year 2016-2017 was a busy and productive year for the Office of Research Compliance. In addition to the normal activities of the unit, many new changes have taken place. Rosemary Ruff retired from the position of Director and Robert Beitle is serving as Interim Director until the position is filled. Our IACUC vet John Hahn retired from his position and has been replaced with Dr. Kate Williams of St. Francis Veterinary Clinic. Our former CLAF Manager, Anthony Munn, accepted a similar position at U Texas and has been replaced with Tina Poseno. Major projects include the transfer of IRB functions to RazorGrant. This will allow for the electronic routing of material associated with human subject research. RSCP is assisting the College of Engineering in the expansion of the small animal facility at ENRC.

**Institutional Review Board (IRB)** There were no reportable Adverse Events in this fiscal year. An issue of noncompliance was examined by the IRB and after the principle investigator appealed the decision of the committee, policies associated with appeal were triggered.

**Radiation Safety Committee (RSC)** ADH performed a site visit and noted a few infractions that have been addressed by EH&S.

**Institutional Animal Care and Use Committee (IACUC)** A small animal facility has been added to ENRC and is being prepared for eventual inspection by the USDA as it has been proposed to house protected species, specifically hamsters, at the unit.

**Biological Safety Committee (IBC)** IBC continues to provide support for projects covered under NIH guidelines. No major biosafety infractions occurred. With the help of EH&S, a policy on the transportation of biomaterials has been (re)written to aid faculty in determining how and when items may be moved on campus and off campus.

**Toxic Substances Committee (TSC)** TSC continues to advocate changes to infrastructure to insure the safe handling and storage of material. With the help of EH&S, new cabinets and explosion proof refrigerators / freezers are being installed campus-wide.

#### **US Export Controls and Sanctions Compliance.**

- Export control reviews were performed that included restricted party screening and technology evaluations/classifications. These included H-1B visas, J-1 visas, campus visitors, NDAs/CDAs, project sponsors, proposals, licenses and other prospective collaborations.
- Specific export control training and ITAR was developed for research administrators and presented during the March 2016 RAP meeting.

Research Compliance renewed the university's registration as a defense contractor to the Directorate of Defense Trade Control to maintain the university's eligibility for defense contracts for research and development.

## **Technology Ventures/UATD**

The Technology Ventures team plays an important role in the commercialization of world-class technology through the promotion of faculty, student, and industrial engagement.

In FY17, Technology Ventures received 29 invention disclosures, filed 34 patent applications and received 10 issued patents. Compared to last year, the number of invention disclosures increased by 9, filed applications increased by 8, and issued patents remained the same. It is worth noting that more than half of the patent applications were new provisional filings while the remaining applications were related to disclosures from previous years.

Licensing activity was slightly higher than last year with 13 negotiated licenses/options/agreements and the formation of two start-up companies. Licensing revenues of \$70,036 and patent cost reimbursements of \$186,804 were realized. Although revenues were significantly less than 2016, patent cost reimbursements were higher than expected and appeared to be influenced by the timing of foreign patent application filings.

Building the Technology Ventures' brand is an important step to further improving researcher engagement. The office is focused on developing innovative ways to commercialize intellectual property and generate new interest from industry sponsors in fiscal year 2018.

## Entrepreneurship

The Office of Entrepreneurship and Innovation team has worked together to develop a strategic plan, communications strategy, and programming that will make a significant contribution to the NWA entrepreneurship ecosystem. The core to our efforts will be the soon-to-be-opened Brewer Family Entrepreneurship Hub. Our physical space and programming will catalyze entrepreneurship among of students, faculty, and Hub members.

In FY17, we led or participated in numerous successful events across the UA campus, with other universities in the state, and with external constituents. We hosted our sixth three-day commercialization retreat, with 75 faculty and administrators from the UA, UAMS, ASU, UALR, UAPB, and NCTR participating. Also, a successful Social Innovation Challenge was launched with success. Nine teams developed solutions to social innovation challenges posted by local non-profit organizations, and two of the finalist teams continued to work with their organizations to implement their solutions in summer and fall 2017.

We received a five-year, \$250,000 NSF grant to become an I-Corps Site and will launch that program in Summer 2017. This will enhance our already successful efforts to build the entrepreneurship ecosystem in the region and the state. The 23 companies that started in our New Venture Development classes have raised over \$60 million in private equity and competitive federal grants, allowing them to hire dozens of UA graduates who would otherwise have left the state to pursue careers. With our team and access to the resources available through the Brewer Family Entrepreneurship Hub, we are confident that our efforts will continue to bear fruit.

## University of Arkansas Press

The press has much to celebrate as we look back on Fiscal Year 2017.

Operational highlights and achievements are as follows:

- ***Barns and Portrait Paintings*** by George Dombek: net sales of 1,130 copies and \$37,772
- ***Champion Trees of Arkansas*** by Linda Palmer: net sales of 1,584 copies and \$31,931
- Net sales increased 12% over FY'16, to \$413,062. Our success is driven by the development of our editorial programs and specifically the strength of our recent art releases. Cash flow trailed slightly but was sufficient to fund Press operations—without accessing endowment principal—and additional investments in digitizing the backlist library. The annual net sales increase stands in contrast to the figures reported by many presses in the AAUP.
- UAP books garnered a number of prestigious awards and reviews in Fiscal 2017. Four new titles received awards and two were named as Choice Outstanding Academic Titles for 2016. Many book reviews were written in over 15 journals, magazines, and television publications.
- Expanded digital content (e-book) agreement with Proquest. E-book sales totaled \$38,999, compared to \$33,426 in FY'16, \$22,876 in FY'15. E-book sales accounted for approximately 9.5% of net sales.
- The Press secured grants and subsidies to support the publication of ten new book projects. Grants and subsidies awarded for the year exceeded \$82,000.



## Arkansas High Performance Computing Center

As a Core Research Facility under the Vice Provost for Research Office, the Arkansas High Performance Computing Center (AHPCC) continues to provide leading edge support for computationally intensive research to the campus, UA system, and the State of Arkansas.

The computing center provided 50M core hours to over 240 active users across five UA colleges and units (ENGR, ARSC, AFLS, GRAD, & VPRED). The active users consist of 51 UAF project leaders in 21 departments, researchers from UALR, ASU, UAMS, and collaborators from 9 other external institutions. AHPCC computing, storage and networking resources along with support efforts through training, workshops and online help resources support more than \$60M in active extramural research grants and contracts.

## Arkansas Center for Space and Planetary Sciences

The faculty of the Center are drawn from two colleges (J. William Fulbright College of Arts and Sciences and the College of Engineering), including the departments of Mechanical and Electrical Engineering, Biological Sciences, Geosciences, and Physics. Collectively these faculty advised 15 graduate students, with 5 of those graduate students completing degree requirements in Space and Planetary Sciences by the end of the year. In addition to SPAC students, the Center helped to support the research of 5 graduate students in PHYS and several undergraduates who conducted research in Center facilities.

The graduate students supported by Center research work closely with the faculty on a great diversity of research projects funded principally by NASA, with lower levels of funding provided by the Arkansas Space Grant Consortium and small collaborative programs with other universities. In 2016 the faculty collectively secured 14 competitively funded grants from a combination of these agencies to the value of \$1,987,234. Approximately 50% of the SCTR student researchers are supported on RAs funded by on-going, previously awarded NASA grants to the value of \$1,772,435.

## Office of Scholarly Communications

ScholarWorks@UARK, a joint venture of the University Libraries and the Office of Research and Innovation, showcases the research, scholarship, and creative work of the University of Arkansas community. By making this content open access, the institutional digital repository offers the knowledge produced by faculty, staff, students, and affiliates without charge to users around the world.

During FY 2017, the number of items in ScholarWorks@UARK increased by 361% (6,186 as of 30 June 2017 compared to 1,715 as of 30 June 2016). Usage also rose significantly, with a 461% increase in the number of downloads (176,627 for FY 2017 compared to 38,300 for FY 2016) and a 323% increase in the number of hits (25,441 for FY 2017 compared to 7,878 for FY 2016). These numbers result from the addition of an undergraduate research journal and new collections of teaching material as well as the completion of the back issues of the *Journal of the Arkansas Academy of Science*, the full run of undergraduate honors theses for 2005-2017, and graduate theses and dissertations for 2009-2012 and 2015-2017. We are currently uploading graduate theses and dissertations for 2013 and 2014. For in-the-moment data on holdings and usage, please see the map and the colorful graphics on the home page.