



THE UNIVERSITY OF NORTH CAROLINA SYSTEM

**UNIVERSITY OF NORTH CAROLINA
RESEARCH AND SPONSORED PROGRAMS
REPORT TO THE PRESIDENT
Fiscal Year 2017**

March 28, 2018

University of North Carolina System
Chapel Hill, North Carolina

Executive Summary

This annual report provides a brief snapshot of the sponsored program activity across the University of North Carolina System for fiscal year 2017 (FY2017).

UNC institutions reported a total of \$1,600,836,318 in sponsored program funding in FY2017. When adjusted for subawards distributed among UNC institutions totaling \$29,154,473, the adjusted FY2017 total was a record \$1,572,066,141. The FY2017 total represents a 7.5% increase over FY2016¹ and a 33% increase over FY2007. In addition, a record 12,432 proposals were submitted in FY2017. The FY2017 total represents a 3.5% increase over FY2016 and a 43.6% increase over FY2007.

As has been the trend for several years, the U.S. Federal Government provides approximately two thirds of the total sponsored program funding received by UNC institutions in FY2017.

Data on select commercial indicators and activities generated from UNC research show an 18.5% increase over FY2016 in licensure/options executed. In addition, FY2017 licensure income increased 15 percent (\$1,426,321) over FY2016 licensure income. Invention disclosures and U.S. patents issued were comparable to FY2016.

¹ The FY2016 report included \$53,134,000 in contracts to East Carolina University Physicians (ECUP) for clinical services. Due to the pending merger of Vidant Health with ECU Physicians, the clinical practice of the Brody School of Medicine, these contracts have been removed from the comparison FY2016 data and are not included in FY2017 data.

RESEARCH AND SPONSORED PROGRAMS REPORT TO THE PRESIDENT: FY2017

Introduction

Research is an essential component of UNC's three-part mission of teaching, research, and public service. In addition to developing new discoveries and innovations, UNC's engagement in research and its related activities is supporting student success, providing a platform for training graduate students, attracting funding to our universities, contributing to North Carolina's business climate and reputation, and enhancing recruitment and retention of talented faculty and students. The bullets below describe a few key elements of research.

- Research is an integral part of the UNC mission and takes place at all UNC institutions
- Faculty are essential in executing the research mission of UNC
- Participation in research enhances student success at both the graduate and undergraduate level
- Research and scholarship enhance instruction for students and engagement with the community
- Research requires and generates resources
- Research benefits society by creating pharmaceutical treatments, medical procedures, products, jobs, and new knowledge

UNC Highlights in FY2017

Below are a few top research accomplishments from FY2017:

- **Appalachian State University** received two Major Research Instrumentation (MRI) awards from the National Science Foundation; one award is generally considered significant. The instrumentation will build out microscopy capacity to include a laser scanning confocal microscope and a scanning electron microscope (unique in the UNC System). The instrumentation is used for undergraduate and faculty research and for teaching.
- **East Carolina University's** College of Nursing is a national leader and is supporting research that evidences how nurses improve patient safety, optimize capacity, promote sustainability and increase economic success in health care delivery systems through a \$2.1M dollar grant from the Versant Center for the Advancement of Nursing.
- **Elizabeth City State University** received more than \$650K in funding from the National Science Foundation in FY17 for STEM initiatives aimed at improving student outcomes in STEM courses and increasing the pipeline of STEM graduates.
- **Fayetteville State University** received an award of more than \$1M from the National Science Foundation to strengthen student success in STEM.
- **North Carolina A&T State University** received a four-year contract through the Test Resource Management Center (TRMC) within the U.S. Department of Defense for \$5.3M to create a data-driven intelligent prediction tool for the testing and evaluation of unmanned autonomous systems, such as drones, rovers, or other air and ground vehicles.
- The Julius L. Chambers Biomedical/Biotechnology Research Institute at **North Carolina Central University** attracted more than \$3M in FY17 to support ground breaking research into health issues that disproportionally affect minority and underserved populations. This ground breaking research provides students with research experiences leading to careers in the biomedical sciences.
- The National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) at **North Carolina State University** is a nationwide public/private consortium focused on research that will

deliver improvements in biopharmaceutical manufacturing as well as the training of the biopharmaceutical workforce. NC State plays a leadership role in this consortium, funded by a five-year \$70M grant from the U.S. Department of Commerce and at least \$130M in funds from 150 companies, academic institutions and non-profits across the country.

- **University of North Carolina at Asheville** received \$700K from the Andrew W. Mellon Foundation to support an arts and educational alliance focused on public arts and humanities in the City of Asheville.
- The Lineberger Comprehensive Cancer Center at the **University of North Carolina at Chapel Hill** received a \$7.493M renewal of its National Cancer Institute Center Core Support Grant to leverage high-impact multidisciplinary research to ultimately reduce cancer incidence and mortality across North Carolina. The Center will continue supporting cutting edge clinical trials research, biostatistical and bioinformatics analysis, tumor genomic sequencing and high resolution imaging. Lineberger is one of 45 NCI-designated comprehensive cancer centers in the United States.
- **University of North Carolina at Charlotte** received a US Department of Transportation research grant totaling \$7.7M to investigate multimodal transportation solutions to relieve congestion and improve efficiency for the movement of people and goods.
- **University of North Carolina at Greensboro** received NIH awards totaling more than \$6.4M to support research in UNCG's the strategic focus area of health and wellness. The funding includes two R01 awards to UNCG's Center for Translational Biomedical Research at the NC Research Campus to investigate the connection between alcohol abuse and fatty liver disease and to identify protein biomarkers correlated with the progression of Type 1 diabetes.
- **University of North Carolina Wilmington** received a \$2.4M award from the Gordon and Betty Moore Foundation to launch a nanosatellite (CubeSat) that will expand UNCW's marine research capacity, providing a unique vantage point for observing changing biology of the ocean surface.
- **Winston-Salem State University's** School of Health Sciences received a \$270K grant from the United Way of Forsyth County to integrate community resources and agencies in order to improve the health of underserved residents in East Winston.
- **North Carolina Research Campus** hosts researchers from Appalachian, North Carolina A&T, NCCU, NC State, UNC-Chapel Hill, UNC Charlotte, and UNC Greensboro. The UNC System researcher garnered more than \$82M in extramural funding in FY2017. In addition, 4 patents were awarded in 2017. (Note: extramural funding and patents are reported in each institution's 2017 research report.)

FY2017 Sponsored Program Funding for UNC

At \$1.572B, the adjusted total FY2017 funding showed a 7.5% increase over the previous fiscal year. Adjusted award dollars exclude the more than \$29M in subawards distributed among UNC institutions. The inter-institutional awards show a healthy collaborative environment, in particular at the Master's Institution level.

Table 1. FY2017 Sponsored Program Activity¹⁻³

	Total Proposals Dollars	Total Awards Dollars (includes inter-institutional awards)	Inter-Institutional Award Dollars	Adjusted Total Award Dollars (minus inter-institutional awards)
Doctoral Granting Institutions				
ECU	\$231,529,938.52	\$45,461,292.49	\$6,106,282.48	\$39,355,010.01
NC A&T	\$239,995,398.02	\$62,525,677.84	\$1,538,075.54	\$60,987,602.30
NCSU	\$1,311,720,654.00	\$406,607,415.00	\$8,491,587.00	\$398,115,828.00
UNC-CH	\$3,861,948,370.59	\$897,800,782.22	\$4,129,588.54	\$893,671,193.68
UNCC	\$262,947,016.00	\$50,917,579.00	\$2,499,407.00	\$48,418,172.00
UNCG	\$131,597,501.18	\$32,173,940.42	\$798,088.00	\$31,375,852.42
Master's Institutions				
ASU	\$73,172,304.00	\$14,070,718.19	\$847,403.61	\$13,223,314.58
ECSU	\$44,884,012.67	\$7,655,553.77	\$320,297.00	\$7,335,256.77
FSU	\$39,005,285.27	\$13,711,678.53	\$876,303.00	\$12,835,375.53
NCCU	\$294,435,699.40	\$22,329,520.00	\$600,923.00	\$21,728,597.00
UNCP	\$24,151,418.06	\$5,702,977.22	\$532,507.00	\$5,170,470.22
UNCW	\$57,344,087.15	\$11,414,278.88	\$928,659.87	\$10,485,619.01
WCU	\$23,484,284.85	\$4,608,021.32	\$284,685.00	\$4,323,336.32
WSSU	\$42,643,203.34	\$10,898,595.00	\$715,517.00	\$10,183,078.00
Baccalaureate Institutions				
UNCA	\$12,358,140.67	\$2,631,290.30	\$216,557.30	\$2,414,733.00
Special Focus Institutions				
UNCSA	\$225,141.00	\$208,841.00	\$0.00	\$613,716.00
NCSSM	\$216,708.00	\$217,083.00	\$20,578.00	\$196,505.00
UNC System Office				
SysOfc	\$7,544,404.97	\$11,901,074.00	\$268,592.00	\$11,632,482.00
Totals	\$6,659,203,567.69	\$1,600,836,318.18	\$29,154,473.34	\$1,572,066,141.84

¹UNC fiscal year runs July 1 through June 30.

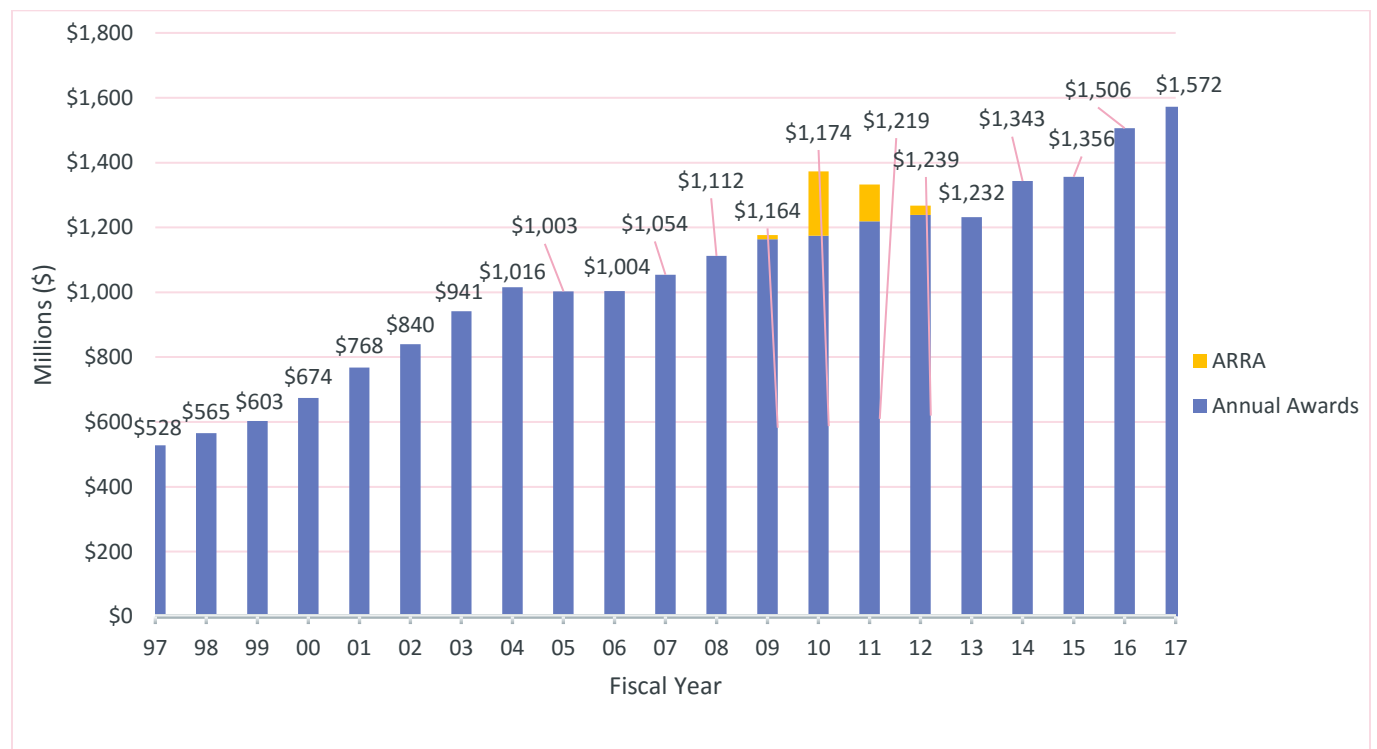
²Not all current fiscal year submissions are funded in the same fiscal year. Additionally, FY Total Proposed Dollars includes some non-competing renewal proposals (primarily associated with NIH funding).

³Some current fiscal year awards are from prior fiscal year proposal submissions.

Trends in Sponsored Program Funding, FY1997-2017

In the last +20 years, UNC sponsored program activity has more than doubled, even without the boost from the American Recovery and Reinvestment Act (ARRA or “stimulus,” shown in tan). A significant factor in this sustained growth is the wise use of facilities and administrative (F&A) receipts to help institutions cover the costs of supporting the research enterprise. UNC institutions utilize F&A receipts to, among other things, maintain and upgrade research infrastructure; invest in new research through matching funds, seed grants and “start up” packages for new faculty; support library holdings; provide cost share funding needed to attract new research projects and jobs to the state; and ensure compliance with federal and other regulations.

Figure 1. Trends in Sponsored Program Funding, FY1997-2017*

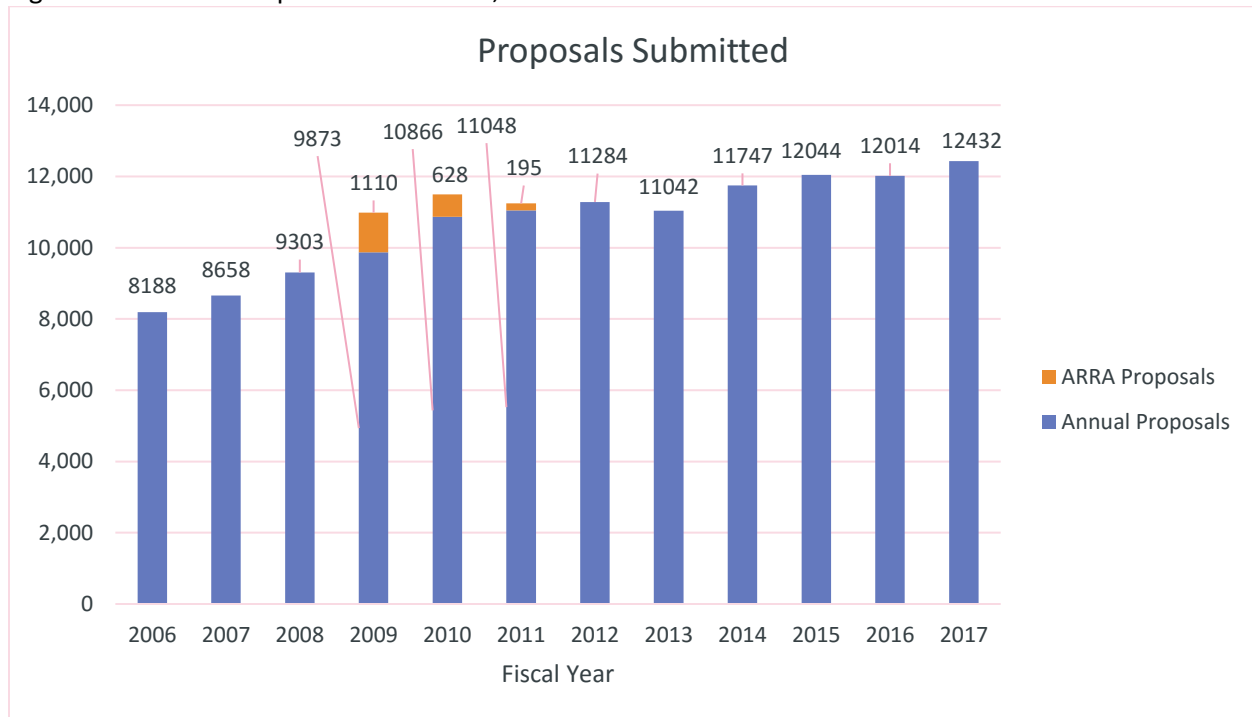


*To avoid double counting, inter-institutional subawards are not included in annual sponsored program funding.

Trends in Proposal Submissions

In FY2017, the number of proposals increased and again exceeded the high water mark seen during the American Recovery and Reinvestment Act (“stimulus”) period. The growth in proposal submissions over nearly a decade underscores the important contributions made by campus research faculty, administrators, and staff.

Figure 2. Trends in Proposal Submissions, FY06-17*



*Inter-institutional subawards require staff effort and are included in annual proposals.

FY2017 Sponsors

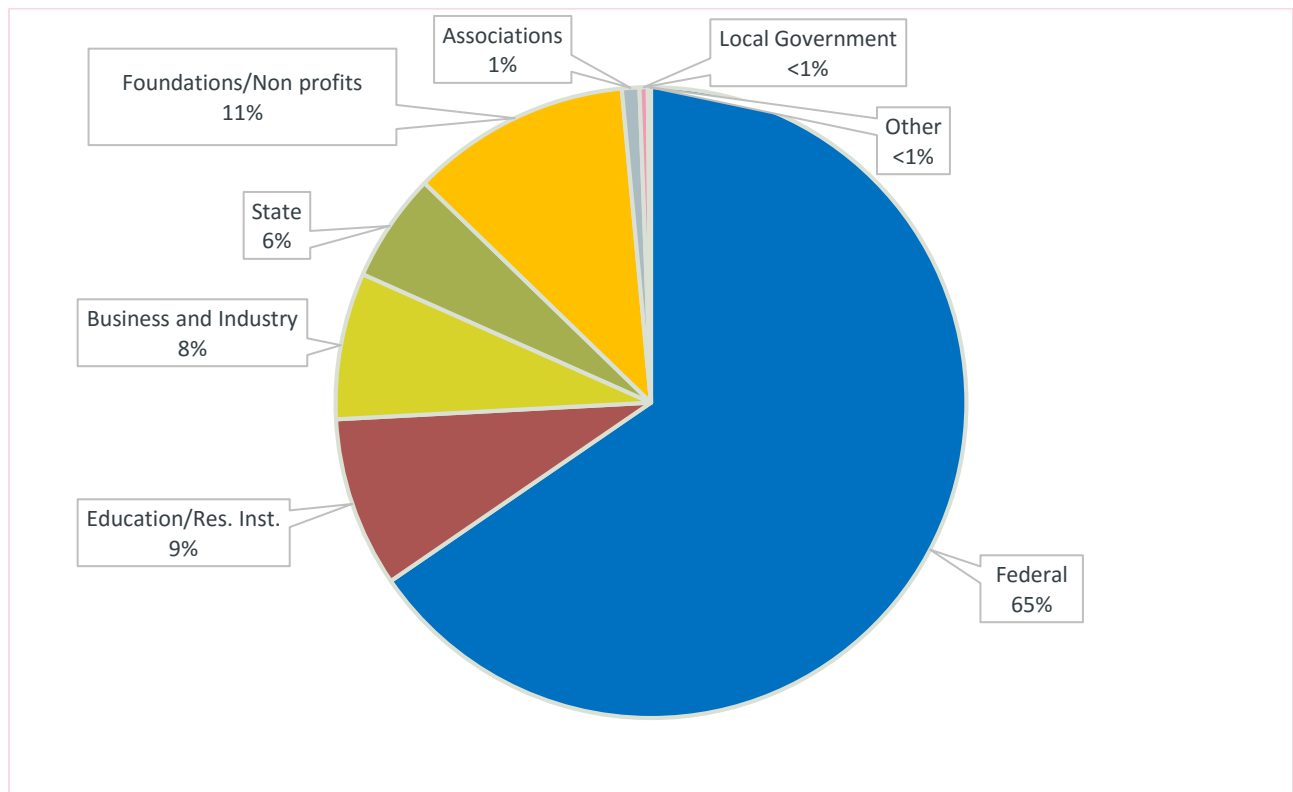
The relative contribution of federal dollars has remained steady over several years, at approximately two thirds of the total sponsored program funding each year. Sponsored award funding from several different sectors grew in FY2017 over the previous fiscal year. Dollars from North Carolina state government agencies declined 15%.

Table 2. FY2017 Sponsors by category

United States Federal Government	
5771 - National Aeronautics and Space Administration (NASA)	\$5,136,203.68
5764 - National Foundation for the Arts and Humanities (NFAH)	\$920,647.70
5738 - National Science Foundation (NSF)	\$152,927,896.00
5845 - US Small Business Administration (SBA)	\$1,080,008.00
5670 - US Department of Agriculture (USDA)	\$54,570,728.30
5634 - Department of Commerce (DOC)	\$9,554,312.17
5522 - Department of Defense (DOD)	\$47,068,861.38
5500 - US Department of Education (DOED)	\$84,543,284.22
5453 - Department of Energy (DOE)	\$29,110,365.00
5285 - Department of Health and Human Services (DHHS)	\$60,002,172.51
5332 - National Institutes of Health (NIH)	\$454,580,325.59
5446 - Department of Homeland Security (DHS)	\$9,614,143.86
5442 - Department of Housing and Urban Development (HUD)	\$21,466.00
5393 - US Department of the Interior (DOI)	\$5,064,600.65
5430 - US Department of Justice (DOJ)	\$2,428,962.00
5424 - Department of Labor (DOL)	\$1,513,628.00
5409 - US Department of State (DOS)	\$1,143,556.44
5375 - US Department of Transportation (DOT)	\$9,212,327.03
5368 - Department of Veterans Affairs (VA)	\$738,927.00
5269 - United States Environmental Protection Agency (EPA)	\$8,224,059.27
5262 - Agency for International Development (USAID)	\$85,549,792.58
5803 - Corporation for National and Community Service (CNCS)	\$1,131,476.00
5807 - All Other Federal Agencies	\$1,278,086.15
5809 - Executive Office of the President (EOP)	\$0.00
18425 - U.S. Commission on Civil Rights	\$0.00
22001 - National Academy of Education	\$0.00
25130 - President of the United States	\$0.00
25131 - Administrative Office of the United States Courts	\$0.00
Confidential	\$21,775,823.00
Total Awards from Federal Government	\$1,047,191,652.53

Nonprofit Organization	
In-State	\$25,058,448.70
All other states	\$25,367,080.17
Total Awards from Nonprofit Organization	\$50,425,528.87
Association	
In-State	\$2,107,232.40
All other states	\$12,183,550.43
Total Awards from Association	\$14,290,782.83
Foundation	
In-State	\$62,310,164.33
All other states	\$67,586,151.39
Total Awards from Foundation	\$129,896,315.72
Local Government	
In-State	\$6,694,060.93
All other states	\$90,029.00
Total Awards from Local Government	\$6,784,089.93
Educational and Research Institutions	
In-State	\$44,291,721.93
All other states	\$95,324,341.48
Total Awards from Educational and Research Institutions	\$139,616,063.41
State Government	
In-State	\$85,488,801.70
All other states	\$3,918,321.18
Total Awards from State Government (NC)	\$89,407,122.88
Business and Industry	
In-State	\$31,349,983.55
All other states	\$88,863,549.18
Total Awards from Business and Industry	\$120,213,532.73
Other Sponsors	
In-State	\$389,303.90
All other states	\$566,480.00
Foreign Sponsors	\$1,629,521.00
Total Awards from Other Sponsors	\$2,585,304.90

Figure 3. FY2017 Sponsors by category



FY2017 Commercial Activity

UNC institutions possess a wide array of existing and emerging strengths in research and related commercial activities. Institutional investments supporting these activities include strategic faculty hiring, sponsored awards, and entrepreneurship programs. In addition, institutions seek to maximize research and commercial activity with existing resources. UNC institutions with the largest research programs estimate that approximately 10% of their faculty is engaged in research with commercial potential.

The Association of University Technology Managers (AUTM) Annual Licensing Survey is a leading source of information on university commercial activity. UNC doctoral granting institutions participate in the annual AUTM survey, making the annual survey a primary source for commercial activity data. Data from non-doctoral granting institutions is self-reported. Tables 3 summarizes FY2017 UNC institution commercial activity data (invention disclosures, U.S. patents issued, licenses or options executed, new start-up companies, and license income) while Table 4 provides a comparison of the FY2017 summary data to the summary data for FY2012 through FY2017.

Table 3. Commercialization in FY2017

	Invention Disclosures	US Patents Issued	Licenses or Options Executed	Start-ups	License Income
Doctoral Granting Institutions					
ECU	11	6	12	0	\$ 286,454
NC A&T	9	3	3	1	\$ 28,000
NCSU	275	47	169	15	\$ 4,445,476
UNC-CH	164	63	74	9	\$ 4,542,469
UNCC	47	13	6	3	\$ 112,017
UNCG	9	0	1	0	\$ 13,288
UNCW	7	0	11	2	\$ 166,823
All other Institutions (ASU/FSU/NCCU)					
	3	1	0	1	\$ 50,000

Table 4. Trends in Commercialization, FY2012-2017

	Invention Disclosures	US Patents Issued	Licenses or Options Executed	Start-ups	License Income
FY17 Totals	525	133	276	31	\$ 9,644,527
FY16 Totals	584	136	237	31	\$ 8,218,206
FY15 Totals	581	90	218	31	\$ 10,886,255
FY14 Totals	467	97	212	31	\$ 15,927,897
FY13 Totals	449	85	197	30	\$ 10,735,867
FY12 Totals	532	91	149	17	\$ 8,977,264

Data on select commercial indicators and activities generated from UNC research show an 18.5 percent increase over FY2016 in licensure/options executed. In addition, FY2017 licensure income increased 19.5

percent (\$1,572,822) over FY2016 licensure income. Invention disclosures and U.S. patents issued were comparable to FY2016.