Norman Campus
RESEARCH

INTERPRETATIONS

Condensed FY 2009 Annual Report
The Condensed Fiscal Year 2009 Annual Report is published by the Office of the Vice President for Research (OVPR), Norman Campus and produced by the Research Statistics and Analysis Group (RSA) within the OVPR. Inquires about this report can be directed to Ernest Abrogar at 405.325.3932 or erabrogar@ou.edu.

OVPR: http://research.ou.edu/
RSA: http://research.ou.edu/rsa

Contributors:
Ernest Abrogar, Information Analyst and Director, RSA
Kelvin Droegemeier, Vice President for Research
Deborah Marsh, Director, Administration and Finance, OVPR
Emily Mick, Graduate Research Assistant, RSA
Office of Financial Support Services/Sponsored Program Services
Office of Research Services

This publication, printed by University Printing Services, is issued by the University of Oklahoma Office of the Vice President for Research at no cost to the taxpayers of the State of Oklahoma. The University of Oklahoma is an equal opportunity institution.

ON THE COVER: Classics Professor Samuel Huskey used this infrared photograph of the last page of a 15th century manuscript to decipher the four lines that have been deleted. Huskey found that they are a poem written in Latin by the scribe, Tommaso Baldinotti, who produced this manuscript when he was just fifteen years old. Huskey surmises that the scribe, who became a well-known poet in his later years, deleted this poem out of dissatisfaction with his early work.

Professor Huskey’s transcription and translation of the text will be published in the next edition of Textual Cultures, the official publication of the Society for Textual Scholarship.

OPPOSITE: This is a two-dimensional projection of a laser-scanning confocal microscope scan of the central nervous system of a larval fruit fly, Drosophila melanogaster. The green cells were labeled with a transgene that produces a membrane-associated green fluorescent protein to reveal cellular morphology at high resolution. Randy Hewes’ lab uses this technique, together with cell-targeted manipulation of gene expression, to study the roles of steroid hormones and insulin in governing long-term changes in nerve cell structure and function.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Research Expenditures</td>
</tr>
<tr>
<td>6</td>
<td>Research Expenditures for Big 12 Institutions</td>
</tr>
<tr>
<td>8</td>
<td>Funding Sources</td>
</tr>
<tr>
<td>10</td>
<td>Federal Funding Sources</td>
</tr>
<tr>
<td>12</td>
<td>Per Capita Research Expenditures for Big 12 Institutions</td>
</tr>
<tr>
<td>14</td>
<td>Journal Articles Per Capita</td>
</tr>
<tr>
<td>16</td>
<td>Monitoring, Understanding, Advancing</td>
</tr>
<tr>
<td>18</td>
<td>Aspire 2020</td>
</tr>
<tr>
<td>19</td>
<td>Fast Facts—OU Research at the Norman Campus</td>
</tr>
</tbody>
</table>
RESEARCH EXPENDITURES

WHAT DOES THIS CHART SHOW?

Total Norman Campus (and Norman Campus programs at OU-Tulsa) research expenditures from OU Fiscal Year 2000 to 2010.

WHY IS IT IMPORTANT?

Research expenditures represent money that is actually spent during a given period of time and thus are often considered a basic measure of the level of research activity at an academic institution. The data shown in Chart 1 exclude Health Science Center and sponsored program expenditures, and therefore are an accurate depiction of research expenditures on the Norman Campus.

WHAT DO WE LEARN FROM IT?

- Research expenditures grew steadily from FY 2005 to FY 2009, with an average rate of 5.3% per year. From FY 2005 - 2009, research and development (R & D) budgets of federal science and engineering agencies grew on average by 2.5%.
- FY 2009 showed the second largest increase in expenditures, $5.9 million, in this decade. The largest gain was $9.1 million in FY 2002. The projected expenditures for FY 2010, $85.8 million, would represent an increase of $7.6 million, or 9.7%, from the FY 2009 total.
Chart 1

Research Expenditures, FY 2000 - 2010
Norman Campus and Norman Campus Programs at OU-Tulsa

Source: Norman Campus Office of Sponsored Program Services
## RESEARCH EXPENDITURES FOR BIG 12 INSTITUTIONS

### WHAT DOES THIS CHART SHOW?

Research expenditures for selected Big 12 institutions for federal Fiscal Years 1999 to 2008.

### WHY IS IT IMPORTANT?

Although Big 12 institutions are not necessarily peers in the context of research and sponsored programs, their regional proximity affords some similarities in culture, demographics, and collegiate characteristics.

### WHAT DO WE LEARN FROM IT?

Since 2000, three distinct groupings of Big 12 institutions have emerged in both total amount and rate of increase in research expenditures. The top cohort comprises four AAU (American Association of Universities) and Carnegie Very High Research institutions: Colorado, Texas A&M, Nebraska, and U of Texas-Austin. All have evidenced growth at twice the rate of the nearest cohort that includes OU, but for different reasons:

**University of Colorado**
- More than 90% of Colorado’s expenditures are from federal sources, and the bulk of its growth has been in health-related research.
- On the Boulder Campus, seven research institutes that employ hundreds of non-faculty researchers account for approximately one-half of all research expenditures.

**Texas A & M University**
- The biggest driver of A & M’s growth has been the addition of nearly 450 new faculty lines between 2002 and 2008.

**University of Texas–Austin**
- A significant driver of UT’s increase in research expenditures is larger-than-expected activity associated with one of its classified research centers.
- The NSF awarded a $60 million grant to establish the Texas Advanced Computing Center (TACC), which has had a significant and sustainable impact on research expenditures.

**University of Nebraska**
- Nebraska has been awarded several large center grants, including an NSF Material Research Science and Engineering Center (one of which also exists at OU), two significant biomedical research grants, biodefense grants, and two Department of Defense Multidisciplinary University Research Initiative (MURI) grants.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Growth Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Colorado</td>
<td>More than 90% of expenditures from federal sources, growth in health-related research.</td>
</tr>
<tr>
<td>Texas A &amp; M University</td>
<td>Addition of nearly 450 new faculty lines between 2002 and 2008.</td>
</tr>
<tr>
<td>University of Texas–Austin</td>
<td>Significant increase in research expenditures, activity associated with classified research centers.</td>
</tr>
<tr>
<td>University of Nebraska</td>
<td>Awarded several large center grants, including NSF Material Research and Biodefense grants.</td>
</tr>
</tbody>
</table>
Chart 2

Research Expenditures from FY 1999 - 2008
Norman Campus and Health Science Center Programs
Excluding Most CCE Outreach Programs
($ thousands)

Source: National Science Foundation
FUNDING SOURCES

WHAT DOES THIS CHART SHOW?
Research expenditures generated from different sources for OU Fiscal Year 2000 to 2009.

WHY IS IT IMPORTANT?
Funding trends indicate the reliability and growth potential of different funding sources. These trends help determine what funding OU can expect in the future as well as provide a basis for improved engagement with specific sources. A diverse funding portfolio (with federal agencies as the largest sponsors) is desirable because it mitigates the effects associated with possible declines in funding by any given source.

WHAT DO WE LEARN FROM IT?
- Since FY 2004, funds coming directly from the federal government have steadily risen. This is largely the result of gains in expenditures from OU-Norman’s top two sponsoring agencies of research, the National Science Foundation (NSF), and the Commerce department’s National Oceanic and Atmospheric Administration (NOAA).
- Multiple Oklahoma Department of Transportation (ODOT) grants (concerning security, archaeological and biological studies, bridges, and communication systems), and Experimental Program to Stimulate Competitive Research (EPSCoR) renewal grants, characterize the return of state funding to its pre-2005 levels.
- Industry funding, composed largely of energy firms’ support of applied research, has shown a marked increase the past several years.
Chart 3

Research Expenditures by Source, FY 2000 - 2009
Norman Campus and Norman Campus Programs at OU-Tulsa

Source: Norman Campus Office of Sponsored Program Services
* Federal Flow Through dollars (i.e. indirect Federal dollars), were classified as non-Federal sources (State and Local Gov't, Industry/Commercial, etc) before FY 2005.
FEDERAL FUNDING SOURCES

WHAT DO THESE CHARTS SHOW?

WHY ARE THEY IMPORTANT?
Federal agencies are the largest sponsors of research by Norman Campus program principal investigators (PIs). Having a funding portfolio with a significant proportion of federal money is advantageous because it is generally larger and more stable than industry, state, and local funding.

WHAT DO WE LEARN FROM THEM?
- Federal research expenditures for Norman Campus programs reached $41.9 million in FY 2009, an all-time high.
- In Chart 4a, the federal agency sponsors providing the greatest research funding to Norman Campus programs, the NSF and Commerce-NOAA, are driving the long-term growth in federal expenditures seen in Chart 3. This bodes well for OU because two of the four largest anticipated increases in agency budgets from federal FY 2010 to 2011 belong to the NSF and Commerce-NOAA, according to the American Association for the Advancement of Science (AAAS) analysis of the FY 2011 federal budget.
- Opportunities exist for Norman Campus researchers to be more engaged with two of the largest federal agency sponsors of research, the National Institutes of Health (NIH), the primary funder of research within the Department of Health and Human Services (HHS), and the Department of Defense, as shown in Chart 4b provided by AAAS.
- Chart 4b also shows Federal R & D funding returning to normal levels after the American Recovery and Reinvestment Act (ARRA) of 2009 infused FY 2009 budgets with stimulus funding. The stimulus grants secured by OU PIs will appear mostly in OU’s FY 2010 and 2011 figures.
Chart 4a

Norman Campus and Norman Campus Programs at OU-Tulsa

Source: Norman Campus Office of Sponsored Program Services

Chart 4b

Trends in Research by Agency
In billions of constant FY 2010 dollars

FY 2010 and FY 2011 figures are latest estimates.
Research includes basic research and applied research.
1977-1984 figures are NSF data on obligations in the federal funds survey.
© 2010 AAAS
**PER CAPITA RESEARCH EXPENDITURES FOR BIG 12 INSTITUTIONS**

**WHAT DOES THIS CHART SHOW?**

Research expenditures in 2008, per full time faculty member and full-time non-faculty researcher holding a doctoral degree, on main campuses only (i.e., excluding medical campuses) for all Big 12 institutions.

**WHY IS IT IMPORTANT?**

The amount of money expended on research depends upon many factors. In order to account for differences in headcount (faculty and research staff), removing the advantage of size, we show 2008 expenditures per capita. The chart provides a sense of productivity in research grants and is a bulk measure of the competitiveness of OU faculty and researchers with their Big 12 counterparts.

PLEASE NOTE: Other university personnel (e.g. researchers without a doctorate) participate in funded projects, and many faculty do not have to seek external funding to conduct their research.

**WHAT DO WE LEARN FROM IT?**

- OU ranks eighth in the Big 12 in the total number of faculty and non-faculty researchers.
- OU ranks ninth in the Big 12 (excluding Baylor, whose research is predominantly medical) in research expenditures per capita.
- **No direct correlation is apparent between per capita expenditures and researcher headcount.** For example, the Universities of Nebraska and Missouri rank second and third, respectively, in per capita research expenditures but are in the lower half of the Big 12 in researcher headcount.
Expenditures Per Researcher at Big 12 Universities in 2008*
Counting Full-time Faculty and Full-time Doctoral degree-holding
Non-Faculty Research Staff
Main Campuses Only

Chart 5

*Sources: Expenditure data from Carnegie Foundation, 2008 Carnegie Classification tables; full-time faculty counts from 2007-2008 Common Data Sets for each institution. Baylor was not included due to its significantly smaller size relative to the institutions shown here.
**WHAT DOES THIS CHART SHOW?**

The number of papers published per full-time Norman Campus faculty member for Calendar Years 2007—2008.

**WHY IS IT IMPORTANT?**

The publication of articles in high-quality journals is a basic outcome of research and a fundamental indicator of scholarly productivity. To remove the factor of institutional size, the chart expresses paper counts on a per capita basis.

**WHAT DO WE LEARN FROM IT?**

In this metric, a one-point difference is quite significant. During the two-year period shown, OU faculty on average published 1.73 articles. With this publication rate, OU is in the bottom quartile of Big 12 institutions. For OU-Norman to join the top quartile of the Big 12, it must at least cross the two-paper threshold for a two-year period.
Published Journal Articles Indexed by the Web of Science*
Per Full-time Faculty Member** for Calendar Years 2007 - 2008***

* Includes the Science Citation Index Expanded, Social Science Citation Index, and the Arts and Humanities Index. The article counts are based on searches built from each university's name and main campus Zip codes. It is possible programs normally associated with a medical campus, such as nursing, can be located at a main campus. The count includes other scholarship mediums as well, such as conference proceedings and reviews.

** Full-time faculty counts are based on Fall 2007 numbers, from each university's 2007-2008 Common Data Set. Mississippi's count is from Fall 2006.

*** As of Nov. 6, 2008

**** Including Norman Campus research, research by Norman Campus programs at OU-Tulsa, and some Health Sciences Center articles -- those published by HSC programs but are listed with Norman campus addresses.
Monitoring, Understanding, Advancing

OU continuously monitors its research performance — and that of its peers — to understand trends and identify and implement best practices to achieve the goal of becoming one of the nation’s top comprehensive research institutions.

Among recent actions taken are the following:

University-wide Research Cabinet, chaired by Dr. Paul Risser, that enables leadership of all three campuses to collaboratively facilitate research excellence and productivity, particularly in those instances in which multi-campus participation results in an institutional value and competitive advantage for the University.

Research External Review, coordinated by the Research Cabinet, was conducted in late August, 2009. The blue ribbon panel, comprised of seven eminent leaders in higher education research, reviewed and provided advice to University leadership on vision, direction, organization and support, and productivity and opportunities associated with research support programs within and across all three campuses.

Research Statistics and Analysis Group (RSA), within the Norman Campus Office of the VP for Research, gathers, analyzes and makes recommendations using quantitative data in order to improve research competitiveness. Information contained in this document was prepared by RSA.

Norman Campus VP for Research Advisory Committee consists of faculty from all colleges on the Norman and Tulsa Campuses to advise the VP for Research on policy, budget, and related matters.
Research Communications Office that promotes OU’s research capabilities to the local, national and international community via press releases, online services including social networking sites, and radio and television productions.

Center for Research Program Development and Enrichment, which will result in the submission of more competitive proposals within and across all disciplines at OU. A key component of the center will be personalized assistance with proposal development, and its focus will eventually broaden to include topics such as leadership and management, mentor training, preparation of manuscripts, strategies for working with publishers, and communication of research outcomes to non-technical audiences.

Multi-Disciplinary Strategic Initiatives in areas of existing strength that, with substantial investment over several years, are now growing to international prominence. Four initiatives are underway, the first beginning in 2003: Weather Radar, Integrative Life Sciences, Applied Social Research, and K-20 Education and Community Renewal.

Excellence in Proposals peer mentoring pilot program in which faculty having strong records of success in obtaining externally-funded grants mentor their early-career colleagues through the entire process of developing and submitting an actual proposal.

Strategic Cluster Hires, to bring to the University outstanding faculty, including members of the National Academies, to transform specific areas of existing research strength into programs having international prominence. The clusters will engage especially complex and intellectually challenging problems having notable importance to society.

Campus-Wide Initiative in Defense, Security, and Intelligence Research, to bring new basic and applied research and development opportunities to faculty in all disciplines, and to apply creative administrative frameworks to facilitate a broad array of program funding mechanisms.
Aspire 2020 is an emerging decadal roadmap for advancing Norman Campus research and creative activity. With intensive faculty involvement in planning, it will guide investment of Norman Campus resources by addressing faculty incentives, setting expectations and mechanisms for accountability, and establishing internal and comparative benchmarks.

The purpose of Aspire 2020 is to drive institutional change. It asserts three transformational objectives for OU:

- Transform Research Competitiveness
- Transform Research Engagement
- Transform Research Culture

Making progress in these objectives will push OU toward an ultimate goal of becoming
The Nation’s Foremost Public
Comprehensive Research University of Its Size.

For more information, visit:

http://aspire2020.ou.edu/
FAST FACTS
OU Research at the Norman Campus

♦ From 2004 to 2009, OU moved up 18 places in the *U.S. News and World Report* college rankings, from 120 to 102. The improvement is the largest of any Big 12 institution for the same period.

♦ *Design Intelligence*, a journal of architecture and design, ranks OU’s Interior Design program among the top six in the nation.

♦ OU Assistant Professor Amy Cerato of the School of Civil Engineering and Environmental Science, is among 100 researchers nationwide named as a recipient of the Presidential Early Career Award for Scientists and Engineers (PECASE), the highest honor bestowed by the U.S. government for outstanding scientists and engineers starting their independent careers.

♦ OU Microbiology Professor Jizhong Zhou and his colleagues at the Institute for Environmental Genomics recently won the first R&D 100 Award for OU and the state of Oklahoma for their work on the GeoChip, which analyzes the functions of microbial communities.

♦ The OU School of Meteorology ranks No. 1 in the nation in mesoscale and severe storm research. It offers the country’s only true interdisciplinary weather radar program between meteorology and engineering.

♦ Dr. Zoe Sherinian, Associate Professor of Ethnomusicology, received her second Fulbright Research Fellowship in 2008-09. She spent nine months in India conducting research and shooting an ethnographic documentary on the changing status of untouchable (Dalit) drummers. She learned to play over 35 different beats on the parai drum and shot 50 hours of film.

♦ The OU College of Engineering is home to 12 recipients of the National Science Foundation CAREER Award, the NSF’s most prestigious award in support of the early career-development activities of faculty who effectively integrate research and education.

♦ Stephanie Malia Hom, assistant professor of Italian, is a 2010-2011 recipient of the Rome Prize, which is annually given to thirty emerging scholars and artists who represent the highest standard of excellence in the arts and humanities.
Office of the Vice President for Research
Three Partners Place, Room 190
201 David L. Boren Boulevard
Norman, OK 73019-5300
http://research.ou.edu/
Telephone: (405) 325-3806 ● Fax: (405) 325-5346

The mission of the Office of the Vice President for Research, Norman Campus, is to facilitate faculty and staff scholarship in all disciplines represented on the Norman Campus and Norman Campus programs at OU-Tulsa.

University Research Cabinet
Three Partners Place, Suite 125
201 David L. Boren Boulevard
Norman, OK 73019-5401
http://researchcabinet.ou.edu/
Telephone: (405) 325-3926

The University Research Cabinet serves as a consistent, continuing and timely mechanism to enable the leadership of all three campuses to collaboratively facilitate research excellence and productivity, particularly in those instances in which multi-campus participation results in an institutional value and competitive advantage for the University of Oklahoma.