

**Annual  
Report of  
Sponsored Program Activity  
Fiscal Year 2005**

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**Division of  
Research**

**University  
of  
North Dakota**

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## EXECUTIVE SUMMARY

I am pleased to present the Division of Research Annual Report of Sponsored Program Activities for fiscal year 2005 (FY05). At the end of FY05, UND's research portfolio included \$276.9 million in total committed accounts, which represents \$227.5 million of current sponsored program accounts received for ongoing multi-year awards plus obligations estimated at \$49.4 million not yet received for ongoing multi-year awards from external agencies that fund research.

FY05 was another successful year for sponsored program awards, expenditures, and commercialization at the University of North Dakota. For the second consecutive year, awards and expenditures are at or about \$80 million. In FY05, sponsored program awards totaled \$80.6 million and expenditures reached \$74.7 million. While both figures are somewhat less than those seen in FY04, which were \$83 million and \$82.6 million respectively, FY05 activity continues to reflect the tremendous growth in research activity over the past five years. Both sponsored program awards and expenditures more than doubled over the past five years. Noteworthy in FY05 was the significant increase in the amount of money that UND researchers requested from external sources to fund research compared to the previous year; specifically, \$306.6 million in proposals for FY05 compared to \$198 million in FY04, an increase of 55 percent. This tremendous increase in the value of grant and contract proposals submitted to external agencies that fund research reflects heightened faculty research activity and is a positive forecaster of increased awards, expenditures, and commercialization activity in the near term. Notably, 72.6 percent of FY05 awards and expenditures stem from federal sources, which represent new money to the State of North Dakota.

The Annual Report that follows is provided in five parts beginning with summaries of; 1) the economic impact of UND sponsored program activity (Part I), 2) sponsored program expenditures (Part II), 3) sponsored program awards (Part III), 4) the North Dakota Experimental Program to Stimulate Competitive Research (ND EPSCoR), which accounts in large part for the advances to research infrastructure that are necessary to support UND's aspirations as a national research institution (Part IV), and 5) the intellectual property activity over the past year that stems from UND research activity along with other details included in a report from Technology Transfer and Commercialization (Part V).

The extent to which UND research serves as a source of economic development is summarized in Table 1-1. UND sponsored program activities in FY05 generated nearly \$163 million in economic output and 1,584 jobs across Grand Forks County, the State of North Dakota, and the five-state North Central Region. In addition, UND sponsored program expenditures generated more than \$5.9 million in state and local tax revenues, and more than \$25 million in federal tax revenues. Table 1-1 shows that the most significant impact of UND research on economic development is felt to an overwhelming extent within the State of North Dakota. For example, \$127.9 million of the \$163 million of economic output, and 1,284 of 1,584 jobs, are realized within the state. The summary report demonstrating the economic impact of UND sponsored program activity in FY05 is found in Part I.

**Table 1-1: UND Research Impact on Economic Output, Employment, and Tax Revenues**

	\$ Output (Y2005 Dollars)	Number of Jobs	State-Local Tax Revenue	Federal Tax Revenue
<b>University of North Dakota</b>	\$80,530,000	724		
<b>GF County</b>	36,820,000	495	\$2,500,000	\$15,170,000
<b>State</b>	9,520,000	65	320,000	2,320,000
<b>5 State Region</b>	35,920,000	300	3,090,000	8,100,000
<b>Total</b>	\$162,780,000	1,584	\$5,910,000	\$25,590,000

A summary of sponsored program activity for FY05 is shown in Table 1-2. Sponsored program expenditures in FY05 amounted to \$74.7 million, a decrease of 9.5 percent compared to FY04 and a 60 percent four-year growth compared to FY01. Grants and contracts expenditures for FY05 amounted to \$62.9 million, a decrease of 9.5 percent compared to FY04 and a 59 percent increase compared to FY01.

The majority of research expenditures at UND focuses around three clusters; 1) energy and environmental research, with the Energy and Environmental Research Center leading other units in this cluster with \$19.5 million in research expenditures, 2) life and medical sciences, with the School of Medicine and Health Sciences leading other cluster units with \$19.1 million in research expenditures, and 3) aerospace and aviation research, with the John D. Odegard School of Aerospace Sciences leading other units in this cluster with \$6.5 million in research expenditures. See Part II for further details regarding sponsored program expenditures.

Sponsored program awards amounted to \$80.6 million, a decrease of 2.9 percent compared to FY04 and an increase of 78.3 percent over the four-year period from FY01-05. More than \$68.5 million of the total sponsored program awards represent grant and contract awards. Over 72.6 percent of the grant and contract awards stem from federal dollars, which is new money to the State of North Dakota. The \$68.5 million in grant and contract awards is a slight decrease of 1.7 percent compared to FY04 and an increase of 51 percent compared to FY01.

**Table 1-2. Summary of Sponsored Programs Awards and Expenditures: FY05**

	<b>Awards (Millions)</b>	<b>Awards Breakdown</b>	<b>Expenditures (Millions)</b>	<b>Expenditures Breakdown</b>
<b>Grants and Contracts</b>	\$68,519,889		\$62,885,305	
Instruction		\$ 3,677,149		\$ 3,514,484
Public Service		19,403,286		15,729,376
Research <sup>4</sup>		43,668,400		41,989,882
Other		1,771,054		1,651,563
<b>Unrestricted Awards</b>	\$3,333,710		\$ 3,105,113	
Faculty Research Seed Money		\$ 415,600		\$ 437,357
Graduate Research Assistant Tuition Waivers		1,305,147		1,305,147
Research Development and Compliance		168,935		70,218
Research Funds Provided by Deans/Departments <sup>1</sup>		994,698		994,698
Senate Scholarly Activities Committee		112,104		80,482
Vice President for Academic Affairs Start-Up		53,000		53,000
Vice President for Research Discretionary <sup>2</sup>		143,226		42,361
Vice President for Research Matching <sup>3</sup>		141,000		121,850
<b>Student Financial Aid</b>	\$ 8,726,678		\$ 8,726,678	
<b>SPONSORED PROGRAMS TOTALS</b>	\$80,580,277		\$74,717,096	

<sup>1</sup> Based on information provided by deans and department chairs

<sup>2</sup> Additional awards made from this fund are included in the total for Faculty Research Seed Money (\$41,400) and Research Development and Compliance (\$50,000 Arts, Humanities and Social Sciences Awards).

<sup>3</sup> Additional awards from these funds are reflected in the "Research" category above because they were match funds for federal grants.

<sup>4</sup> The number differs from that used in other sections of this report because it reflects matching funds for federal grants.

Part IV summarizes the annual activities of the ND EPSCoR program, which aims to build the proper infrastructure to sustain nationally competitive research in the State of North Dakota, and to enhance and support the technology transfer and commercialization of the intellectual property stemming from the state's two research universities. In FY05, EPSCoR awards on the UND campus amounted to over \$1.3 million. Details of these awards can be found in Part IV.

Technology Transfer and Commercialization made outstanding progress in their first full year of operation. Measures to protect the University's intellectual property showed tremendous positive growth. Twenty-two invention disclosures were submitted in FY05, up from one in FY04, and nine patent applications were filed in FY05, up from three in FY04. Complete details related to the protection and management of the University's intellectual property can be found in Part V.

UND is well on its way to achieving the research goals set forth in President Kupchella's strategic plan for 2006-11. The data presented here are strong testimony to the skill and expertise of the university's faculty and staff, and a reflection of the university's commitment to provide proper infrastructure and support for research, scholarship, and creative activity. The continuing success in extramural funding is yet another indication that UND is well on its way at becoming a fully-engaged research institution of the highest caliber, where the University brings its resources to bear on the problems facing the region, the nation, and the world.

Peter Alfonso, Ph.D.  
Vice President for Research

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# **PART I**

## **The Economic Impact of Research at the University of North Dakota: FY05**

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**J. Lloyd Blackwell, III, Ph. D.  
Professor of Economics  
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**University  
of  
North Dakota**

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The University of North Dakota received approximately \$80.6 million in grant and contract awards in fiscal year 2005. Input-output analysis indicates that the economic impact of these awards on Grand Forks County, the State of North Dakota, and the North Central Census Region was a staggering \$162.78 million in economic output, 1,584 jobs, and almost \$31.5 million in local, state, and federal taxes.

Report Commissioned by the Office of the Vice President for Research

Report prepared by:

J. Lloyd Blackwell, III, Ph. D.  
 Professor of Economics  
 Director, Bureau of Business and Economic Research



This report provides estimates of the economic impacts of the approximately \$80.6 million in sponsored research occurring at the University of North Dakota (UND) during fiscal year 2005 (FY05). Estimates are given for Grand Forks County, the State of North Dakota, and the North Central Census Region (North Dakota, South Dakota, Minnesota, Montana, and Wyoming), measured by the value of economic output, employment, and tax revenues.

With the exception of tax revenues, measures of economic impact are frequently categorized as *direct*, *indirect* and *induced* impacts.

The *direct* impact of the research on a region is the result of spending the available research dollars on the purchase of goods and services such as laboratory supplies or the hiring of students or technicians. The purchase of goods and services from the sponsored research creates economic activity in supporting industries which is referred to as the *indirect* impact. The *induced* impact results from purchases made by those individuals whose income has been generated by employment related to either the *direct* or the *indirect* impact of the sponsored research.

North Central Region



# The Economic Impact of UND Research on Output and Employment

Figure 1 shows the relative effects of the direct, indirect and induced impacts of UND sponsored research on the economic output of Grand Forks County, North Dakota, and the North Central Region, respectively. For each dollar spent for research at UND there was \$1.46 in economic activity in Grand Forks County, \$1.58 in North Dakota, and \$2.06 in the North Central Region. Not surprisingly the economic impact was greater as the size of the study area increased. These results clearly indicate the importance of the research conducted at UND on the local, state, and regional economies.

Figure 1: Output per UND Research Dollar

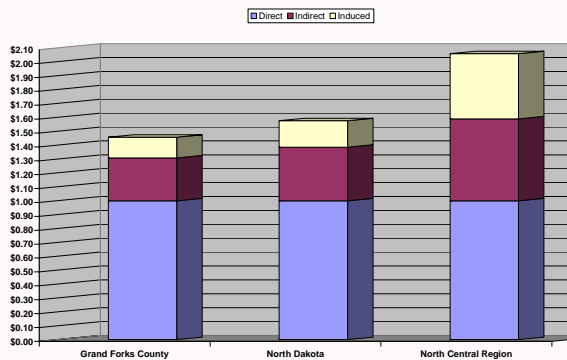
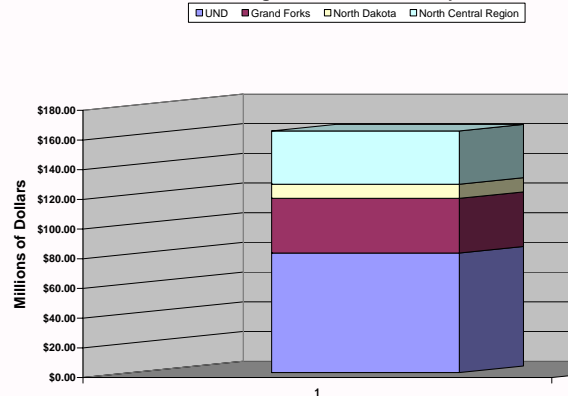


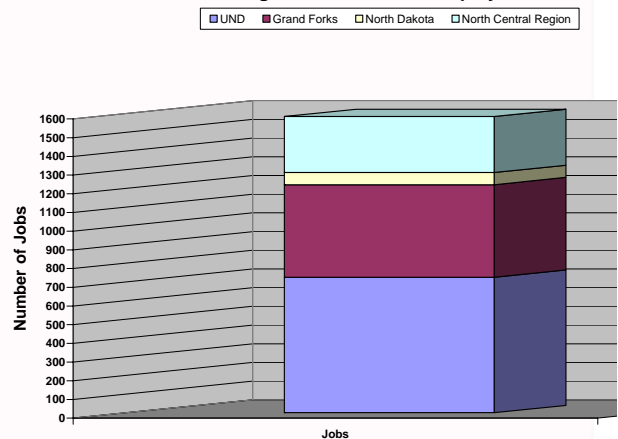
Figure 2 shows the cumulative economic output impacts of FY05 UND sponsored research across the region, beginning with the direct impact on UND. The impacts added by indirect and induced impacts on Grand Forks County, the remainder of North Dakota, and the North Central Region are shown by the heights of their respective blocks. The cumulative impact of UND research within the State of North Dakota is \$126,870,000. See Table I for additional details.

Figure 2: Cumulative Output



The estimated FY05 employment impact of UND research was approximately 724 jobs at UND, 495 additional jobs in North Dakota and 300 additional jobs outside of North Dakota within the North Central Region. These cumulative employment impacts are shown in Figure 3. The cumulative number of jobs within the State of North Dakota created by UND research is 1,284. See Table I for additional details.

Figure 3: Cumulative Employment

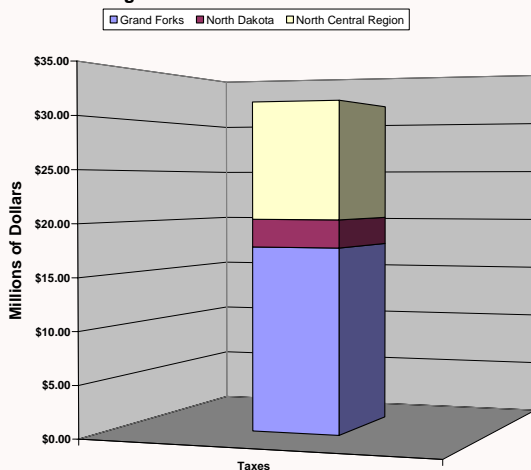


## The Economic Output of UND Research on Local, State and Federal Taxes

UND research expenditures are not taxable, but the estimates in Table I show that the indirect and induced impacts of FY05 UND sponsored research generated \$2.5 million in state and local tax revenues and \$15.17 million in federal tax revenues from Grand Forks County. An additional \$320 thousand in state and local taxes and \$2.32 million in federal taxes was generated outside of Grand Forks County within North Dakota. Interestingly, \$3.09 million in state and local taxes and \$8.1 million in federal taxes were estimated to have been generated outside of North Dakota within the North Central Region. The total state and federal taxes generated by UND's sponsored research was \$31.51 million. Figure 4 shows cumulative estimated total tax revenues estimated for Grand Forks County, North Dakota and the North Central Region.

The \$80.5 million in sponsored research received by UND in FY05 is estimated to have had an additional impact of \$36.82 million in Grand Forks County, \$9.51 million in other counties within North Dakota and \$35.92 million in the North Central Region. This research is also estimated to have led to the creation of 724 jobs within UND, 495 additional jobs in Grand Forks County, 65 additional jobs in other counties of North Dakota and 300 jobs outside of North Dakota but within the North Central Region for a total of 1,584 jobs. The state, local and federal tax impact of UND research spending was estimated at \$17.67 million from Grand Forks County, plus another \$2.64 million from North Dakota and another \$11.19 million from the North Central Region, for a total of \$31.50 million in state, local, and federal taxes attributable to FY05 UND sponsored research.

Figure 4: Cumulative Tax Revenues



**Table I: Economic Impact Summary for Fiscal Year 2005**

Impact Area	UND Research Impact	
	Output	Number of Jobs
UND	\$80,530,000	724
Grand Forks County	\$36,820,000	495
North Dakota	\$9,520,000	65
North Central Region	\$35,920,000	300
<b>Total</b>	<b>\$162,780,000</b>	<b>1,584</b>
	S/L Taxes	Federal Taxes
Grand Forks County	\$2,500,000	\$15,170,000
North Dakota	\$320,000	\$2,320,000
North Central Region	\$3,090,000	\$8,100,000
<b>Total</b>	<b>\$5,910,000</b>	<b>\$25,590,000</b>

## University of North Dakota's Research Administration



Peter Alfonso, Ph.D., has been Vice President for Research at the University of North Dakota since 2002. The mission of the Office of the Vice President for Research is to serve the broad research community of the University of North Dakota, a community that is instrumental in meeting the strategic aims of the University. Research administration is centered in five offices: namely the Office of the Vice President for Research, Grants and Contracts Administration, Research Development and Compliance, Technology Transfer and Commercialization, and ND EPSCoR. In fiscal year 2005, a total of \$80.6 million in awards was received for sponsored research activities, and research expenditures totaled \$62.9 million.



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**PART II**

**Annual  
Report of Sponsored  
Program Expenditures**  
Fiscal Year 2005

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**Grants  
and  
Contracts  
Administration**

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University of North Dakota  
Grand Forks, North Dakota 58202-7306

**University  
of  
North Dakota**

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**SPONSORED PROGRAMS EXPENDITURES  
DURING FISCAL YEAR 2005**

The data below represent expenditures from awards to UND and direct resources for research provided by UND and the City of Grand Forks. The record of sponsored program expenditures is a critical measure of the University's success in carrying out its mission of education, intellectual discovery, addressing the needs of society and contributing to economic growth.

Sponsored program expenditures grew to \$74,717,096 in Fiscal Year 05 (see Table 2-1), a decrease of \$6,282,150 or 8% from FY04 (see Table 2-2 and Figure 2-1). Fiscal Year 03 was the first year that expenditures on Unrestricted Awards were tracked. This growth represents significant effort by the University's faculty and staff who are engaged in scholarly activities.

Research Expenditures for the year are reported to the National Science Foundation (NSF). The NSF Survey of Research and Development Expenditures represents a summary of expenditures in support of research. Shown in Figure 2-1 are (1) expenditures from competitive federal sources and (2) "total" expenditures, which is the sum of federal expenditures plus sponsored research expenditures from state and local government, industry, and non-profit organizations. Also included in the NSF Survey of Research and Development Expenditures are institutional funds in support of research, cost sharing on certain grants, tuition and fee waivers on student research appointments, and unrecovered indirect costs.

**Table 2-1. Sponsored Program Expenditures: FY 2005**

	<b>Expenditures</b>	<b>Expenditures Breakdown</b>
<b>Grants and Contracts</b>	\$ 62,885,305	
Instructions		
Public Service		
Research		
Other		
<b>Unrestricted Awards</b>	3,105,113	
Faculty Research Seed Money		437,357
Graduate Research Assistant Waivers		1,305,147
Research Development and Compliance		70,218
Research Funds Provided by Deans/Departments <sup>1</sup>		994,698
Senate Scholarly Activities Committee		80,482
Vice President for Academic Affairs Start-Up Awards		53,000
Vice President for Research Discretionary Funds <sup>2</sup>		42,361
Vice President for Research Matching Funds <sup>2</sup>		121,850
<b>Student Financial Aid</b>	8,729,678	
<b>Total</b>	<b>\$ 74,717,096</b>	

<sup>1</sup> Additional awards made from this fund are included in the total for Faculty Research Seed Money (\$41,400) and Research Development and Compliance (\$50,000 Arts, Humanities and Social Sciences Awards).

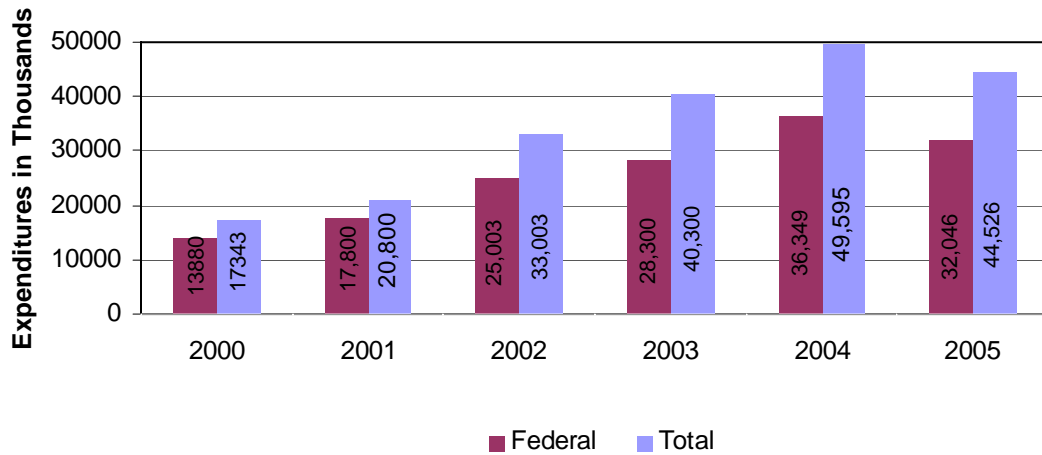
<sup>2</sup> Additional awards from these funds are reflected in the "Grants and Contracts" category above because they were match funds for federal grants.

**Table 2-2. Sponsored Programs Expenditures: FY 1995-2005**

<b>Fiscal Year</b>	<b>Grants and Contracts Expenditures</b>	<b>Student Financial Aid</b>	<b>Unrestricted Awards Expenditures*</b>	<b>Total Expenditure</b>
1995	\$38,264,689	\$5,820,840		\$44,085,529
1996	\$49,594,316	\$5,349,312		\$54,943,628
1997	\$39,531,459	\$5,487,886		\$45,019,345
1998	\$34,461,671	\$6,192,015		\$40,653,686
1999	\$34,435,913	\$6,243,659		\$40,679,572
2000	\$34,587,257	\$6,381,292		\$40,968,549
2001	\$39,645,228	\$7,067,236		\$46,712,464
2002	\$48,313,401	\$8,164,661		\$56,478,062
2003	\$57,284,831	\$8,960,555	\$1,476,437	\$67,721,823
2004	\$69,506,545	\$9,093,366	\$2,399,335	\$82,587,295
2005	\$62,885,305	\$8,726,678	\$3,105,113	\$74,717,096

\*Unrestricted Awards expenditures are included in FY 2003, FY 2004, and FY 2005.

**Figure 2-1. NSF Survey of Science and Engineering Research Expenditures**



**PART III**

**Annual  
Report of  
Sponsored Program Awards  
Fiscal Year 2005**

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**Research  
Development  
and  
Compliance**

Barry I. Milavetz, Ph.D.  
Associate Vice President for Research  
University of North Dakota  
Grand Forks, North Dakota 58202-7134

**University  
of  
North Dakota**

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## INTRODUCTION

The Annual Report of Sponsored Program Awards has a two-fold purpose: a) to provide information regarding grants and contracts awarded to the University of North Dakota (UND) by external funding entities during Fiscal Year 2005, and b) to provide information regarding grants and contracts awarded from the University's unrestricted funds to support research/creative activities during Fiscal Year 2005. The Report is presented in three sections:

- Section I. Grants and Contracts Activity
- Section II. Unrestricted Funds Activity
- Section III. Awards from the RD&C Research Fund

Four appendices are attached. These appendices provide detailed information concerning proposals submitted (Appendix A) and grants/contracts awarded (Appendix B) during Fiscal Year 2005. Appendix C presents the same information as provided in Appendix B except that the data are listed by the administrative unit that received the award. Appendix D is comprehensive and includes internal and external awards by the name of each principal or co-principal investigator; i.e., awards from the Faculty Research Seed Money Committee, the Senate Scholarly Activities Committee (SSAC), Research Development and Compliance (RD&C), and ND-EPSCoR are listed. Since the data in Appendix D are presented by each principal or co-principal investigator, there is duplication in the amount reported in some instances. Thus, the aggregate amount will not sum to the figure listed for total awards presented in Appendices B and C.

Information in this report has been reconciled with data provided the by Grants and Contracts Administration. The award data include only those awards for which a written notification of funding was received and an account established by Grants and Contracts Administration on or before June 30, 2004. It is possible that a principal investigator was notified of an award during the last few months of the fiscal year, but the award was not recorded in this report because the account number was not assigned prior to June 30, 2005. Unreported Fiscal Year 2005 awards will appear in the Fiscal Year 2006 Annual Report.

Data in this report pertain to grants and contracts that were processed through Research Development and Compliance. Not all externally or internally awarded funds are reported since some forms of assistance are not regularly reported to, or administered through, Research Development and Compliance. These categories include:

- federal formula funding for student financial aid,
- grants or contracts awarded to foundations associated with UND,
- grants or contracts awarded directly to faculty or staff but not administered through UND,
- donations of equipment which facilitate research/scholarly activity or teaching at UND.

## SECTION I. GRANTS AND CONTRACTS ACTIVITY

Table 3-1 provides summary data concerning grants and contracts\* at the University of North Dakota during the past decade. A total of \$68,130,689 was received in Fiscal Year 2005 from a variety of sources. These funds supported construction, instruction, public service, scholarships/fellowships, and student service projects as well as research. Total award dollars reflected a 2.2 percent decrease over the previous fiscal year but a 50 percent increase over the decade. There was a 4.7 percent decrease in the number of awards received, with 701 awards in Fiscal Year 2004 and 668 received in Fiscal Year 2005.

**Table 3-1. Grants and Contracts Received at UND: FY 1995-FY 2005**

Fiscal Year	Proposals Submitted		Awards Received	
	Number	Amount Requested (\$ Millions)	Number	Amount (\$ Millions)
1995	664	73.1	581	45.4 <sup>a</sup>
1996	563	71.0	571	51.1
1997	474	76.2	571	33.7 <sup>b</sup>
1998	499	92.6	579	34.8
1999	604	79.3	555	37.8
2000	673	114.6	650	41.6
2001	654	130.0	598	45.2
2002	672	165.4	673	54.7
2003	743	188.3	666	61.2
2004	857	198.0	701	69.7
2005	926	306.6	668	68.1 <sup>c</sup>

<sup>a</sup>Includes \$5,902,269 in research building connection funds  
<sup>b</sup>Includes \$138,000 in research building construction funds  
<sup>c</sup>Includes \$984,159 in research building construction funds.

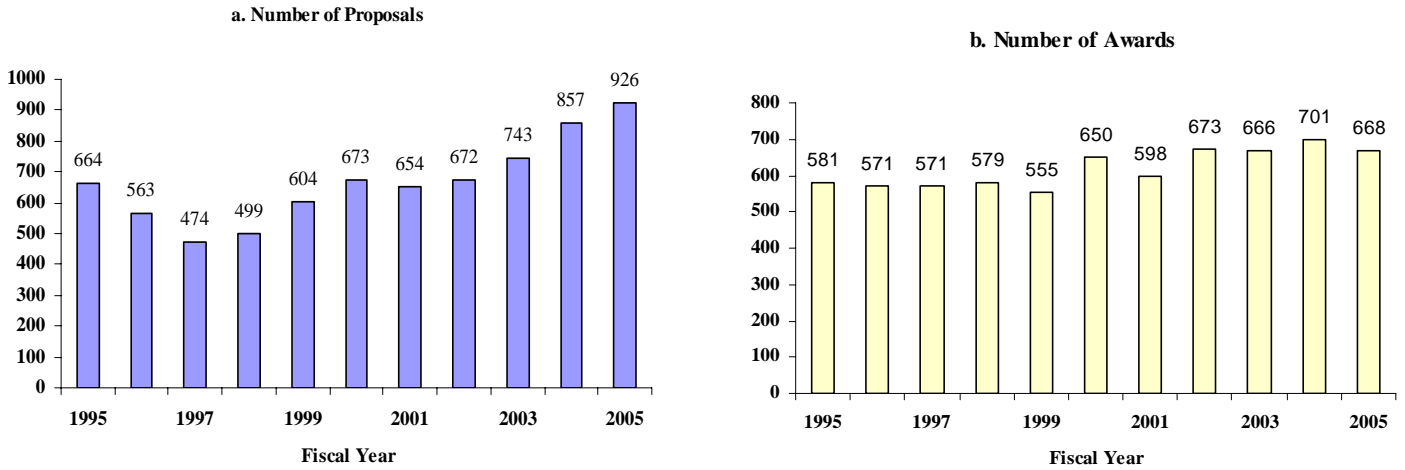
The number of proposals submitted to external agencies increased from 857 in Fiscal Year 2004 to 926 in Fiscal Year 2005. The dollar value of proposals submitted increased from \$197,980,835 to \$306,556,724. These increases reflect a continued emphasis on the pursuit of external support at UND. Because of intense competition in funding for higher education programs, however, further increases in proposal submission will be necessary to maintain growth in external funding. Additional emphasis will need to be placed on improving proposal quality and strategies. Alternatively, additional faculty could be hired to ensure future significant increases in proposals and awards.

Figure 3-1 and 3-2 on the following page give a graphical representation of the data given in table 3-1.

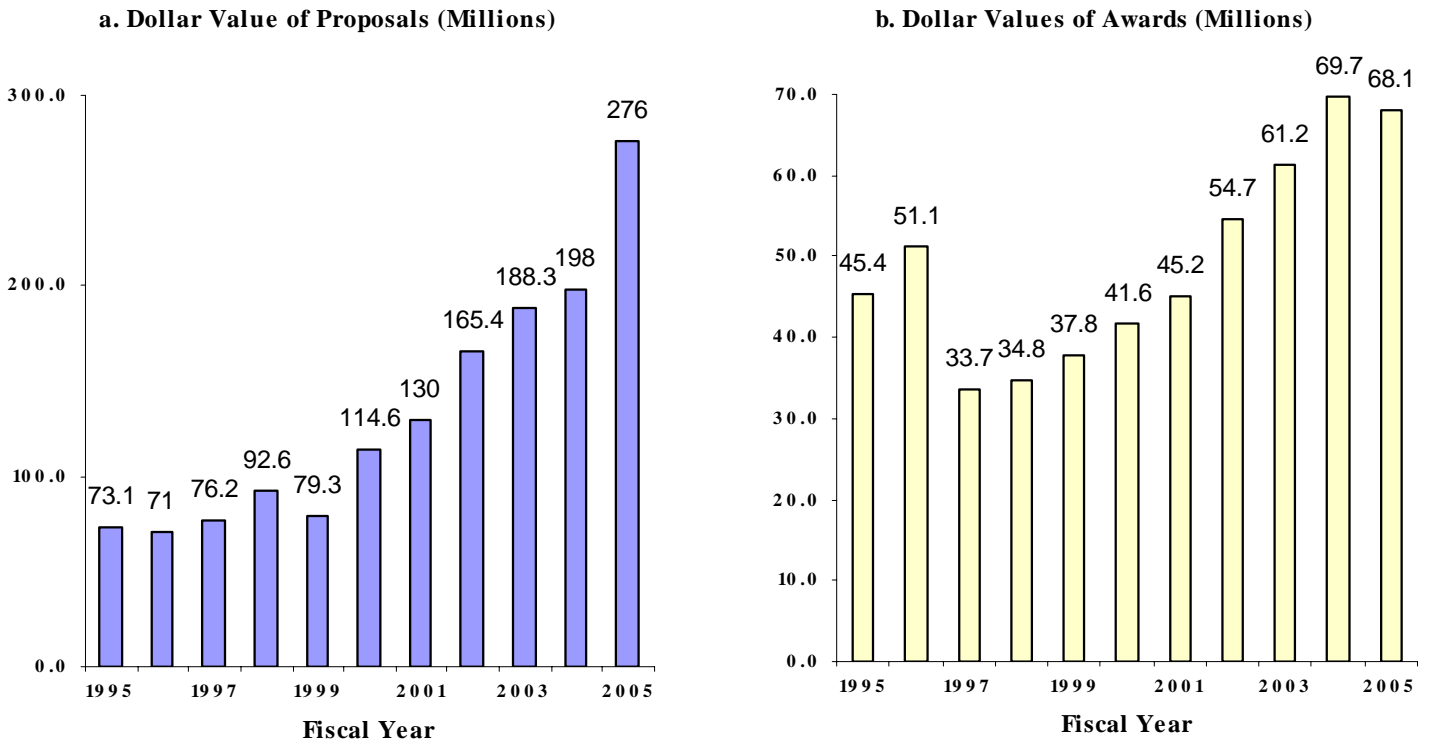
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\* "Grants and contracts" refers to research, program development, service, fellowships/training and construction projects funded by organizations or persons external to the University (federal, state, and local governments; foundations; industry; etc.).

**Figure 3-1. Number of Proposals Submitted and Funded: FY 1995-FY 2005**



**Figure 3-2. Dollar Value of Grants and Contracts: FY 1995-FY 2005**



The types of organizations providing grants and contracts in Fiscal Year 2005 are listed in Table 3-2. The federal government, the principal provider of external funding, awarded the University \$49,460,019 (72.6 percent) in grants and contracts.

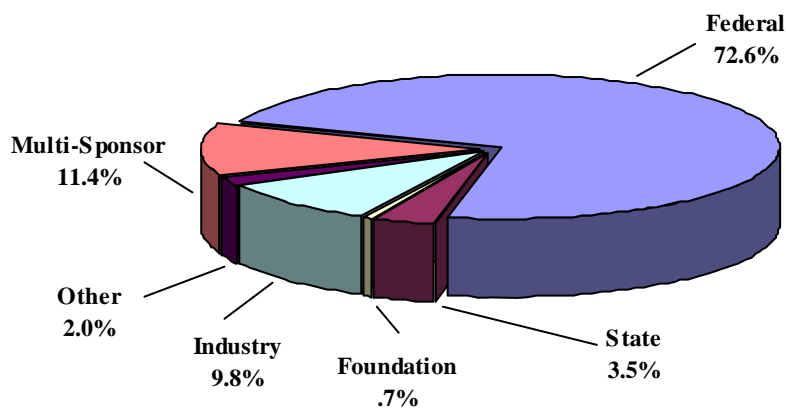
**Table 3-2. Grants and Contracts at UND by Source: FY 2005**

Source of Funding	Amount	Amount	Percentage
Federal Government		\$49,460,019	72.6%
State Government		2,367,217	3.5%
Foundation		466,901	0.7%
Industry		6,643,368	9.8%
Other		1,405,572	2.0%
Multi-Sponsor		7,787,612	11.4%
Federal and Foundation	\$ 20,000		
Federal and Industry	1,032,010		
Federal and Other	2,278,009		
Federal and State	4,454,622		
Federal, State and Industry	2,971		
<b>TOTALS</b>		<b>\$68,130,689</b>	<b>100.0%</b>

The “Multi-Sponsor” awards are primarily “pass-through” funds provided by a federal agency to a state, industry or other agency which, in turn, entered into an agreement with the University to pass those federal funds forward.

Figure 3-3 is a graphic depiction of the same information provided in Table 3-2. Much of the support from industry went to the Energy and Environmental Research Center, but the College of Arts and Sciences and the Schools of Engineering and Mines and Aerospace Sciences also received significant support from this source. Support was received from ten foundations: the American Nursing, Arthritis, Epilepsy, Myra, Otto Bremer, Robert Wood Johnson, Spencer, UND Aerospace, and Western Kentucky University Research Foundations; and the New England Foundation for the Arts.

**Figure 3-3. Sources of Grants and Contracts Funding: FY 2005**



The category “other” includes the Agricultural Utilization Research Institute; American Petroleum Institute; Beaver Creek Watershed, Fisheries Scholarship Fund; Grand Forks Herald; Mental Health Association of North Dakota; Minnesota Corn Research and Promotion Council; National States Geographic Information Council; North Dakota Association for the Disabled; North Dakota Humanities Council; NYSERDA; Pan American Health Organization/World Health Organization; Society for Analytical Chemists of Pittsburgh; TVA; Upton Resources USA, Inc.; American Coal Ash, Dakota Asphalt Pavement; Muscular Dystrophy, National Collegiate Athletic and Northharvest Bean Growers

Associations; several North Dakota city, county, and township agencies; public school districts; agencies of other states or countries; and other universities.

Grants and contracts received by the major University administrative units in Fiscal Years 2003-2005 are presented in Table 3-3; Figure 3-4 Part 1, Units Receiving Over \$1 Million; and Figure 3-4 Part 2, Units Receiving Under \$1 Million. Increases were experienced in the College of Nursing (60 percent), School of Aerospace Sciences (7.4 percent), School of Engineering and Mines (80.2 percent), and the School of Medicine and Health Sciences (7.5 percent). Decreases were seen in the College of Arts and Sciences (46.2 percent), College of Business and Public Administration (60.3 percent), and School of Law (14 percent). The EERC experienced a 14.6 percent increase. EERC's awards comprised approximately 35.8 percent of the total awards; and the School of Medicine and Health Sciences' awards comprised approximately 27.2 percent.

Caution is urged in interpreting these statistics. Although a grant or a contract may be multi-year in operation, some awards are recorded in the first year only. Thus, award data may vary significantly from actual expenditure data.

The data presented by major University administrative units in Table 3-3 is presented by College/Department in Tables 3-4 - 3-12 and Figures 3-5 - 3-13 on pages 18-27.

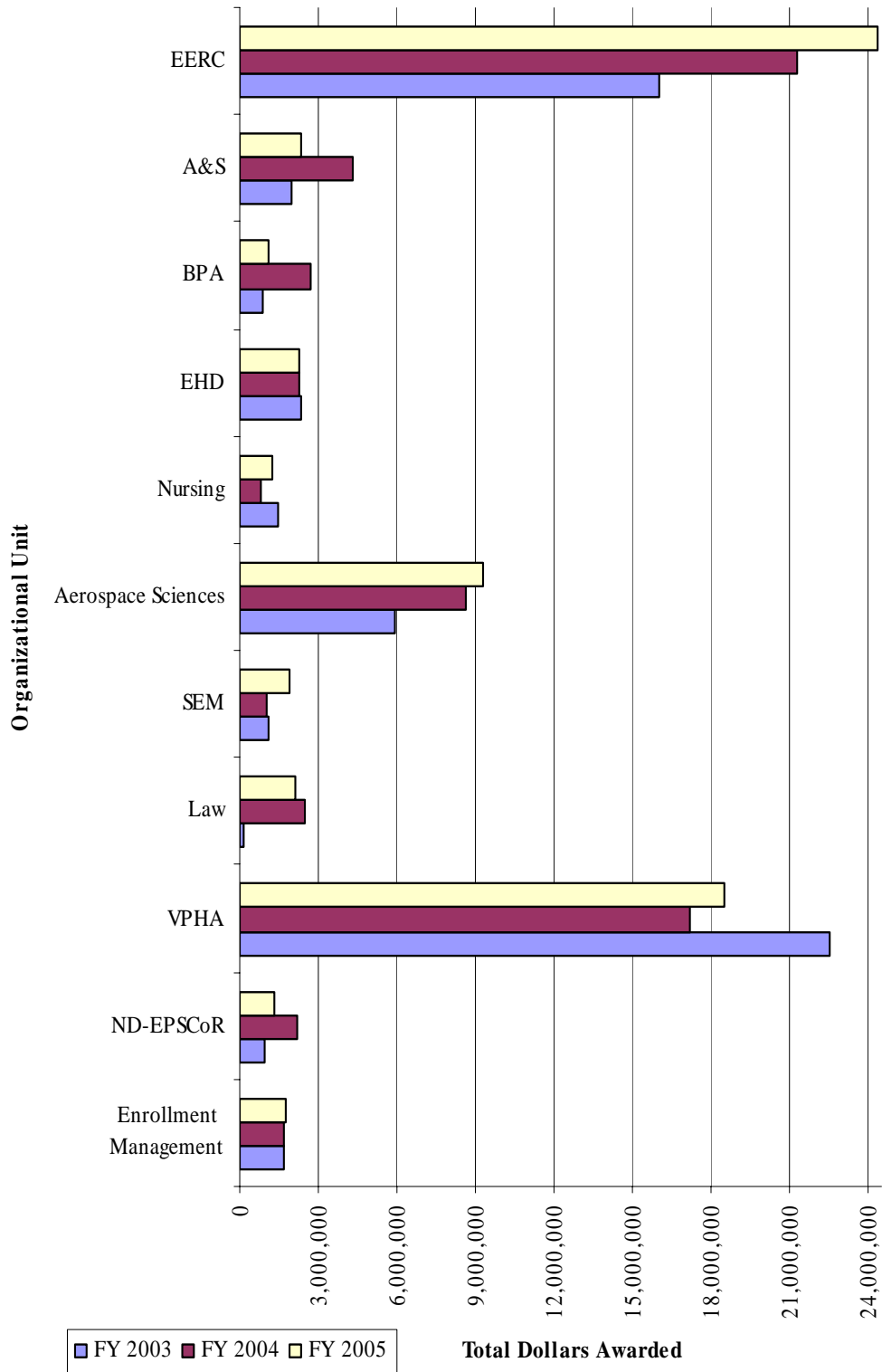
**Table 3-3. Grants and Contracts Received at UND by Administrative Unit: FY 2003-2005**

Unit	FY 2003	FY 2004	FY 2005
<b>Office of the President</b>			
Athletics	\$ 0	\$ 86,456	\$ 0
Energy and Environmental Research Center	16,019,474	21,284,751	24,390,280
Human Nutrition Research Center <sup>b</sup>	2,250,048	0	0
<b>Office of the President; Office of the Vice President for Academic Affairs and Provost</b>			
Energy and Environmental Research Center; John D. Odegard School of Aerospace Sciences	285,000	50,000	0
Energy and Environmental Research Center; School of Engineering and Mines	15,000	0	0
<b>Office of the President; Office of the Vice President for Health Affairs</b>			
Energy and Environmental Research Center; School of Medicine and Health Sciences	144,911	79,833	0
<b>Office of the President; Office of the Vice President for Student and Outreach Services</b>			
Athletics; Student Health Services	15,000	0	10,000
<b>Office of the Vice President for Academic Affairs and Provost</b>			
Chester Fritz Auditorium	0	2,430	0
Chester Fritz Library	6,458	6,372	750
College of Arts and Sciences <sup>a</sup>	1,994,935	4,326,503	2,327,527
College of Arts and Sciences; School of Engineering and Mines	120,986	66,507	23,507
College of Business and Public Administration	900,589	2,740,929	1,089,007
College of Education and Human Development	2,374,568	2,300,895	2,258,049
College of Nursing <sup>a</sup>	1,443,758	796,480	1,275,150
John D. Odegard School of Aerospace Sciences <sup>a</sup>	5,899,157	8,662,977	9,304,848
North Dakota EPSCoR <sup>b</sup>	972,570	0	0
Office of Instructional Development	0	337,495	0
School of Engineering and Mines <sup>a</sup>	1,069,299	1,055,496	1,901,670
School of Engineering and Mines; College of Arts and Sciences	0	84,000	0
School of Engineering and Mines; College of Arts and Sciences; John D. Odegard School of Aerospace Sciences	0	293,254	92,514
School of Engineering and Mines; John D. Odegard School of Aerospace Sciences	279,071	0	0
School of Law	126,133	2,459,611	2,116,089

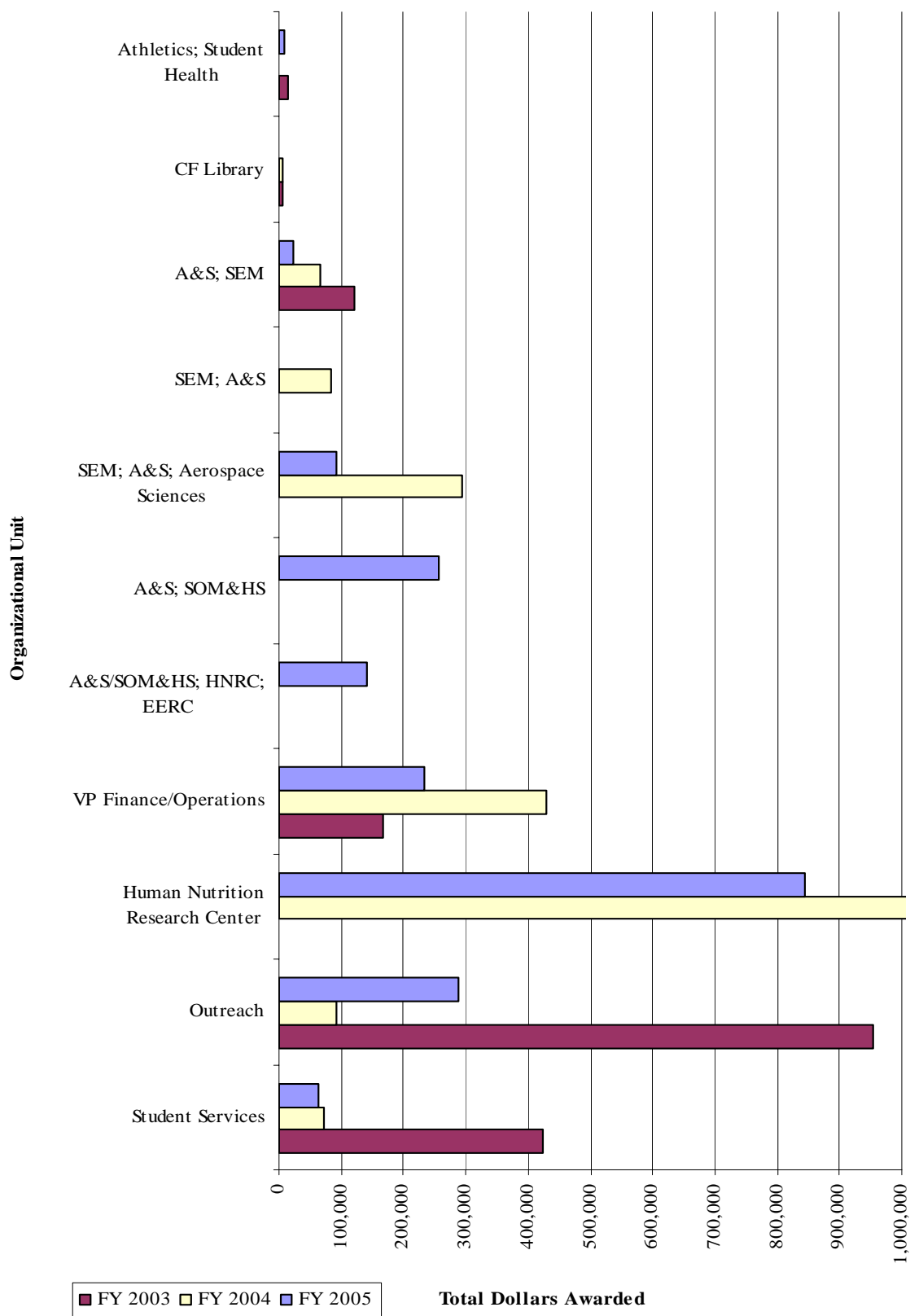
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<b>Table 3-3. (Continued)</b>			
<b>Office of the Vice President for Academic Affairs and Provost; Office of the President</b>			
John D. Odegard School of Aerospace Sciences; Energy and Environmental Research Center	0	20,886	0
<b>Office of the Vice President for Academic Affairs and Provost; Office of the Vice President for Health Affairs</b>			
College of Arts and Sciences; School of Medicine and Health Sciences	0	0	255,445
College of Nursing; School of Medicine and Health Sciences	20,500	0	0
<b>Office of the Vice President for Academic Affairs and Provost; Office of the Vice President for Health Affairs; Office of the Vice President for Research; Office of the President</b>			
College of Arts and Sciences; School of Medicine and Health Sciences; Human Nutrition Research Center; Energy and Environmental Research Center	0	0	140,200
<b>Office of the Vice President for Finance and Operations</b>	167,377	428,764	232,966
<b>Office of the Vice President for Health Affairs<sup>a</sup></b>	22,532,698	17,210,355	18,504,476
<b>Office of the Vice President for Health Affairs; Office of the President</b>			
School of Medicine and Health Sciences; Energy and Environmental Research Center	1,306,339	1,315,792	0
<b>Office of the Vice President for Health Affairs; Office of the Vice President for Student and Outreach Services</b>			
School of Medicine and Health Sciences; Student Health Services	156,545	0	0
<b>Office of the Vice President for Research</b>			
Human Nutrition Research Center <sup>b</sup>	0	1,522,065	844,416
ND-EPSCoR <sup>b</sup>	0	2,160,253	1,287,500
<b>Office of the Vice President for Research; Office of the Vice President for Academic Affairs and Provost</b>			
Human Nutrition Research Center; College of Arts and Sciences	0	500,000	0
<b>Office of the Vice President for Student and Outreach Services</b>			
Division of Enrollment Management	1,697,645	1,705,544	1,724,792
Division of Outreach	952,698	92,500	289,102
Division of Student Services	424,983	71,957	62,401
<b>TOTALS</b>	<b>\$61,175,742</b>	<b>\$69,662,105</b>	<b>\$68,130,689</b>
<sup>a</sup> Additional Funding for these Colleges is included in the North Dakota EPSCoR total listed later in the report.			
<sup>b</sup> The Human Nutrition Research Center and North Dakota EPSCoR Program moved to the Vice President for Research in FY 2004.			

**Figure 3-4. Part 1--Administrative Units Receiving \$1 Million or More: FY 2003-FY 2005**



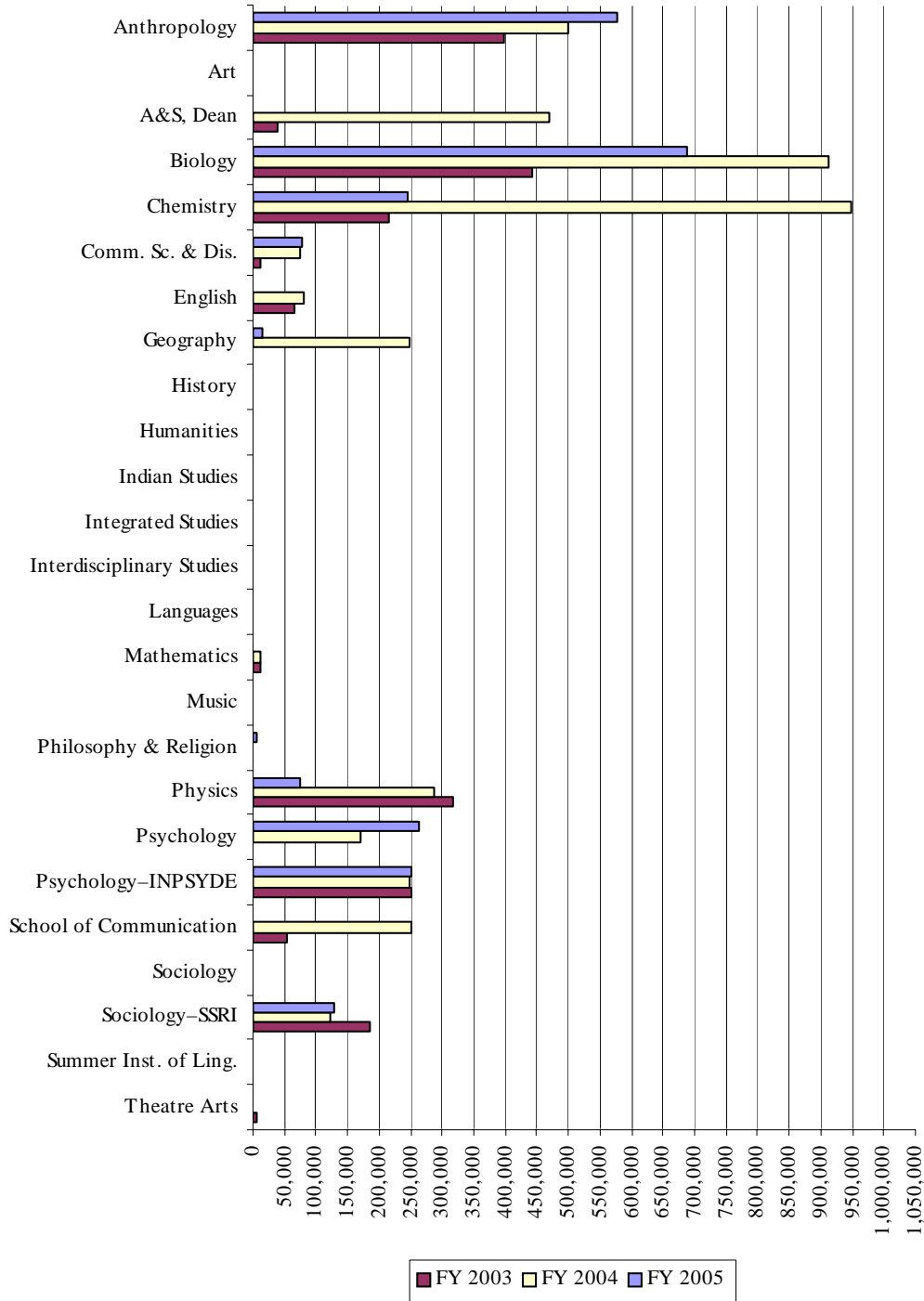
**Figure 3-4. Part 2--Administrative Units Receiving Under \$1 Million:  
FY 2003-FY 2005**



**Table 3-4. Grants and Contracts Received by the College of Arts and Sciences:  
FY 2003-FY 2005**

<b>Department</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Anthropology	\$ 397,623	\$ 500,835	\$ 578,083
Art	0	0	0
Arts and Sciences, Dean's Office	40,000	470,175	0
Biology	441,836	913,032	686,720
Chemistry	216,585	949,776	244,055
Chemistry, Biology (Joint Proposal)	0	0	0
Communication Sciences and Disorders	12,750	74,350	78,600
English	66,000	81,500	0
Geography	0	247,000	15,500
History	0	0	0
Humanities	0	0	0
Indian Studies	0	0	0
Integrated Studies	0	0	0
Interdisciplinary Studies	0	0	0
Languages	0	0	0
Mathematics	11,000	12,000	0
Music	0	0	0
Philosophy and Religion	0	0	4,800
Physics	316,784	285,699	76,280
Psychology	0	170,106	264,046
Psychology-INPSYDE	250,000	247,992	250,000
School of Communication	53,501	250,000	0
Sociology	0	0	0
Sociology-Social Science Research Institute	184,034	124,038	129,443
Summer Institute of Linguistics	0	0	0
Theatre Arts	4,822	0	0
<b>TOTALS</b>	<b>\$1,994,935</b>	<b>\$4,326,503</b>	<b>\$2,327,527</b>

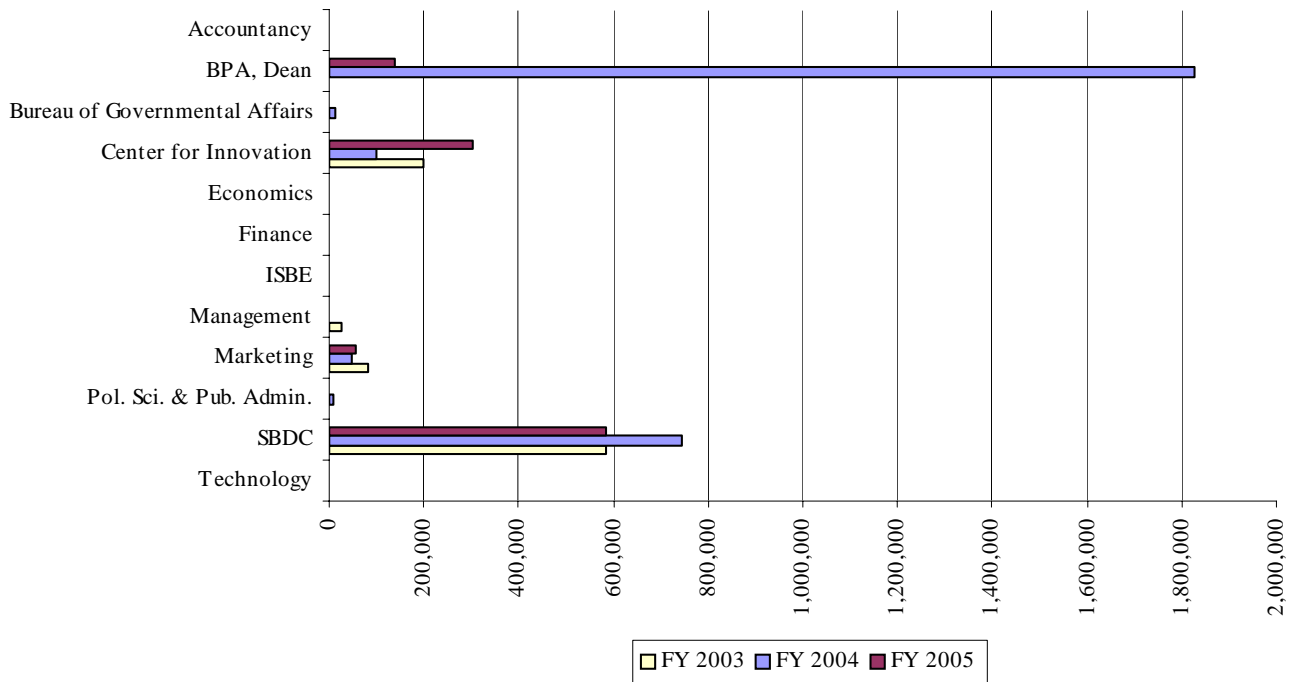
**Figure 3-5. Grants and Contracts Received by the College of Arts and Sciences: FY 2003-2005**



**Table 3-5. Grants and Contracts Received by the College of Business and Public Administration:  
FY 2003-FY 2005**

Department	FY 2003	FY 2004	FY 2005
Accountancy	\$ 0	\$ 0	\$ 0
Business and Public Administration, Dean's Office	0	1,826,419	138,679
Bureau of Governmental Affairs	4,000	10,949	2,971
Center for Innovation	199,000	99,000	302,000
Economics	0	0	0
Finance	0	0	0
Information Systems and Business Education	5,000	4,150	4,500
Management	25,000	0	0
Marketing	82,089	47,060	55,111
Political Science and Public Administration	0	6,851	2,746
Small Business Development Center	585,500	746,500	583,000
Technology	0	0	0
<b>TOTALS</b>	<b>\$900,589</b>	<b>\$2,740,929</b>	<b>\$1,089,007</b>

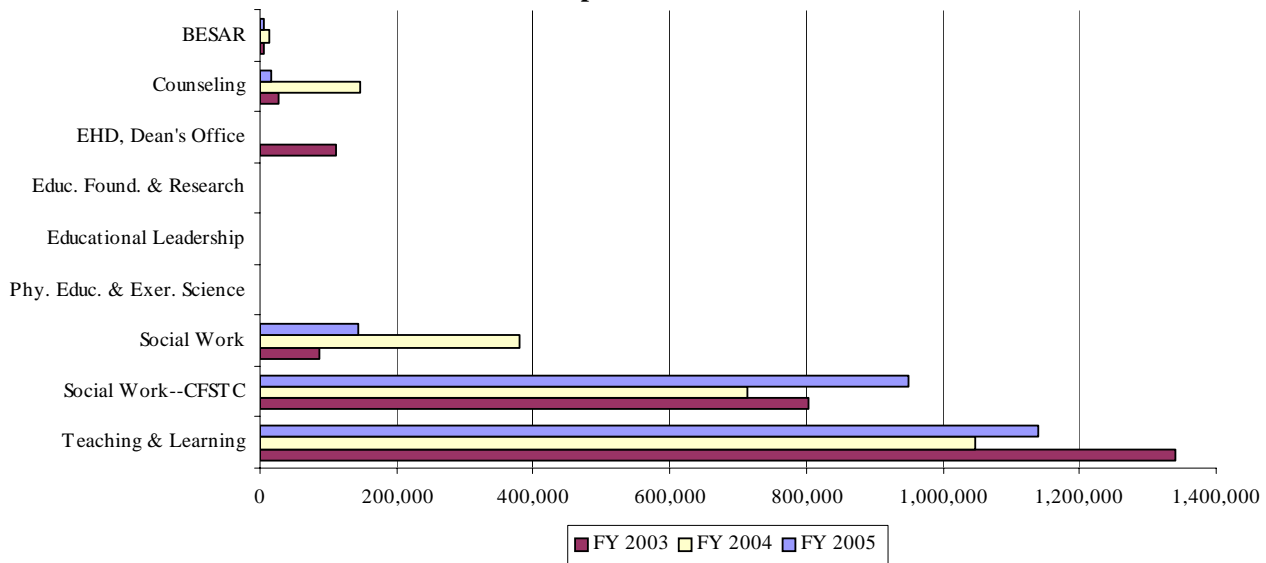
**Figure 3-6. Grants and Contracts Received by the College of Business and Public Administration: FY 2003-2005**



**Table 3-6. Grants and Contracts Received by the College of Education and Human Development:  
FY 2003-2005**

Department	FY 2003	FY 2004	FY 2005
Bureau of Educational Services and Applied Research	\$ 6,480	\$ 13,130	\$ 6,650
Counseling	28,000	146,097	17,500
Education and Human Development, Dean's Office	111,080	0	0
Educational Foundations and Research	0	0	0
Educational Leadership	0	0	0
Physical Education and Exercise Science	0	0	0
Social Work	86,326	378,894	143,526
Social Work-Children and Family Services Training Center	801,831	714,760	949,500
Teaching and Learning	1,340,851	1,048,014	1,140,873
<b>TOTALS</b>	<b>\$2,374,568</b>	<b>\$2,300,895</b>	<b>\$2,258,049</b>

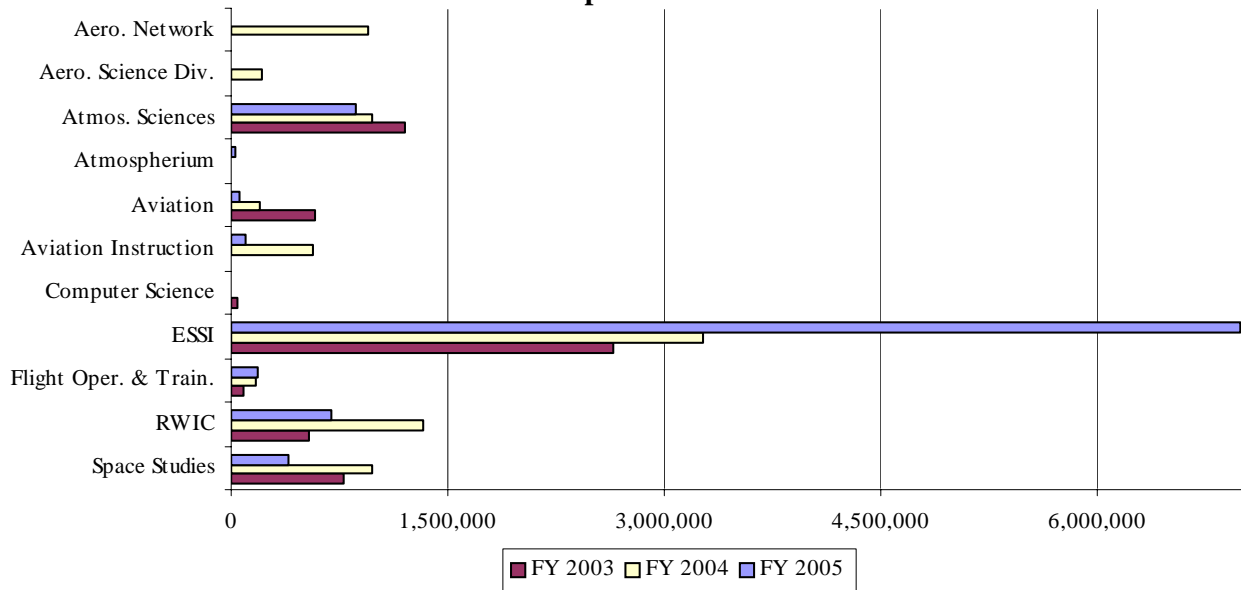
**Figure 3-7. Grants and Contracts Received by the College of Education and Human Development: FY 2003-2005**



**Table 3-7. Grants and Contracts Received by the John D. Odegard School of Aerospace Sciences:  
FY 2003-FY 2005**

Department	FY 2003	FY 2004	FY 2005
Aerospace Network	\$ 10,000	\$ 944,000	\$ 0
Aerospace Science Division	0	206,000	0
Atmospheric Sciences	1,205,988	980,453	866,285
Atmospherium	3,830	4,081	29,361
Aviation	578,913	201,967	56,531
Aviation Instruction	0	563,308	99,948
Computer Science	36,771	16,000	0
Earth System Science Institute	2,649,190	3,267,187	6,981,042
Flight Operations and Training	90,821	175,822	188,319
Regional Weather Information Center	539,244	1,327,973	692,459
Space Studies	784,400	976,186	390,903
<b>TOTALS</b>	<b>\$5,899,157</b>	<b>\$8,662,977</b>	<b>\$9,304,848</b>

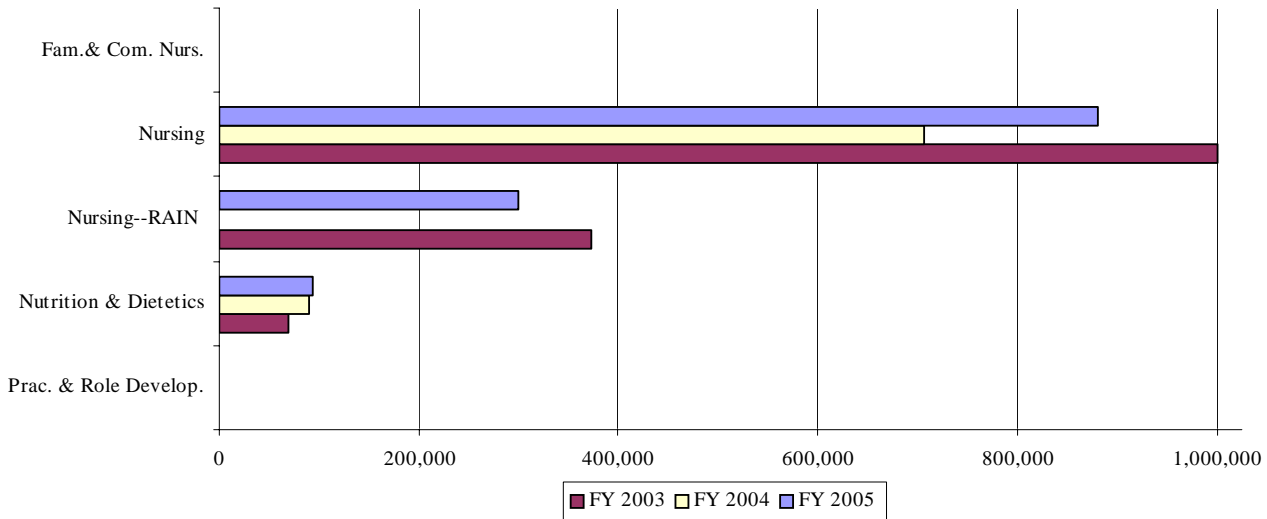
**Figure 3-8. Grants and Contracts Received by the John D. Odegard  
School of Aerospace Sciences: FY 2003-2005**



**Table 3-8. Grants and Contracts Received by the College of Nursing: FY 2003-FY 2005**

Departments	FY 2003	FY 2004	FY 2005
Family and Community Nursing	\$ 0	\$ 0	\$ 0
Nursing	1,001,474	705,880	880,576
Nursing-RAIN Program	373,284	0	300,000
Nutrition and Dietetics	69,000	90,600	94,574
Practice and Role Development	0	0	0
<b>TOTALS</b>	<b>\$1,443,758</b>	<b>\$796,480</b>	<b>\$1,275,150</b>

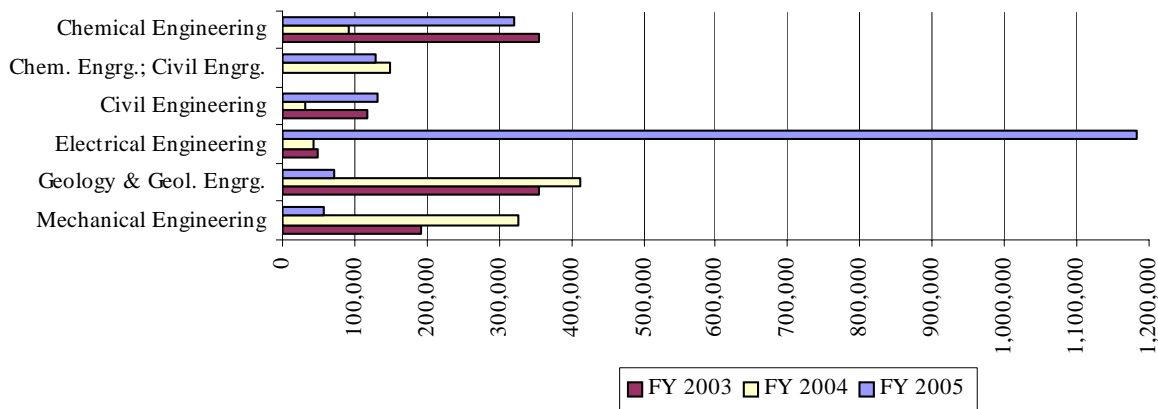
**Figure 3-9. Grants and Contracts Received by the College of Nursing: FY 2003-2005**



**Table 3-9. Grants and Contracts Received by the School of Engineering and Mines: FY 2003-FY 2005**

Department	FY 2003	FY 2004	FY 2005
Chemical Engineering	\$ 354,042	\$ 91,303	\$320,725
Chemical Engineering; Electrical Engineering	0	150,000	130,075
Civil Engineering	118,297	32,654	131,623
Electrical Engineering	49,021	42,655	1,183,174
Geology and Geological Engineering	355,184	413,094	70,660
Mechanical Engineering	192,755	325,790	65,413
<b>TOTALS</b>	<b>\$1,069,299</b>	<b>\$1,055,496</b>	<b>\$1,901,670</b>

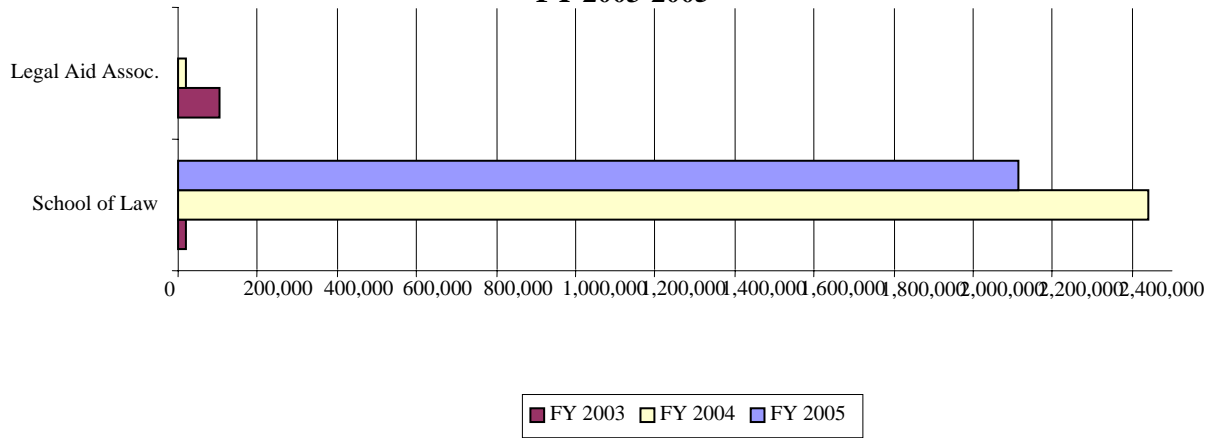
**Figure 3-10. Grants and Contracts Received by the School of Engineering and Mines: FY 2003-2005**



**Table 3-10. Grants and Contracts Received by the School of Law: FY 2003-FY 2005**

Department	FY 2003	FY 2004	FY 2005
Legal Aid Association	\$105,511	\$ 20,000	\$ 0
School of Law	20,622	2,439,611	2,116,089
<b>TOTALS</b>	<b>\$126,133</b>	<b>\$2,459,611</b>	<b>\$2,116,089</b>

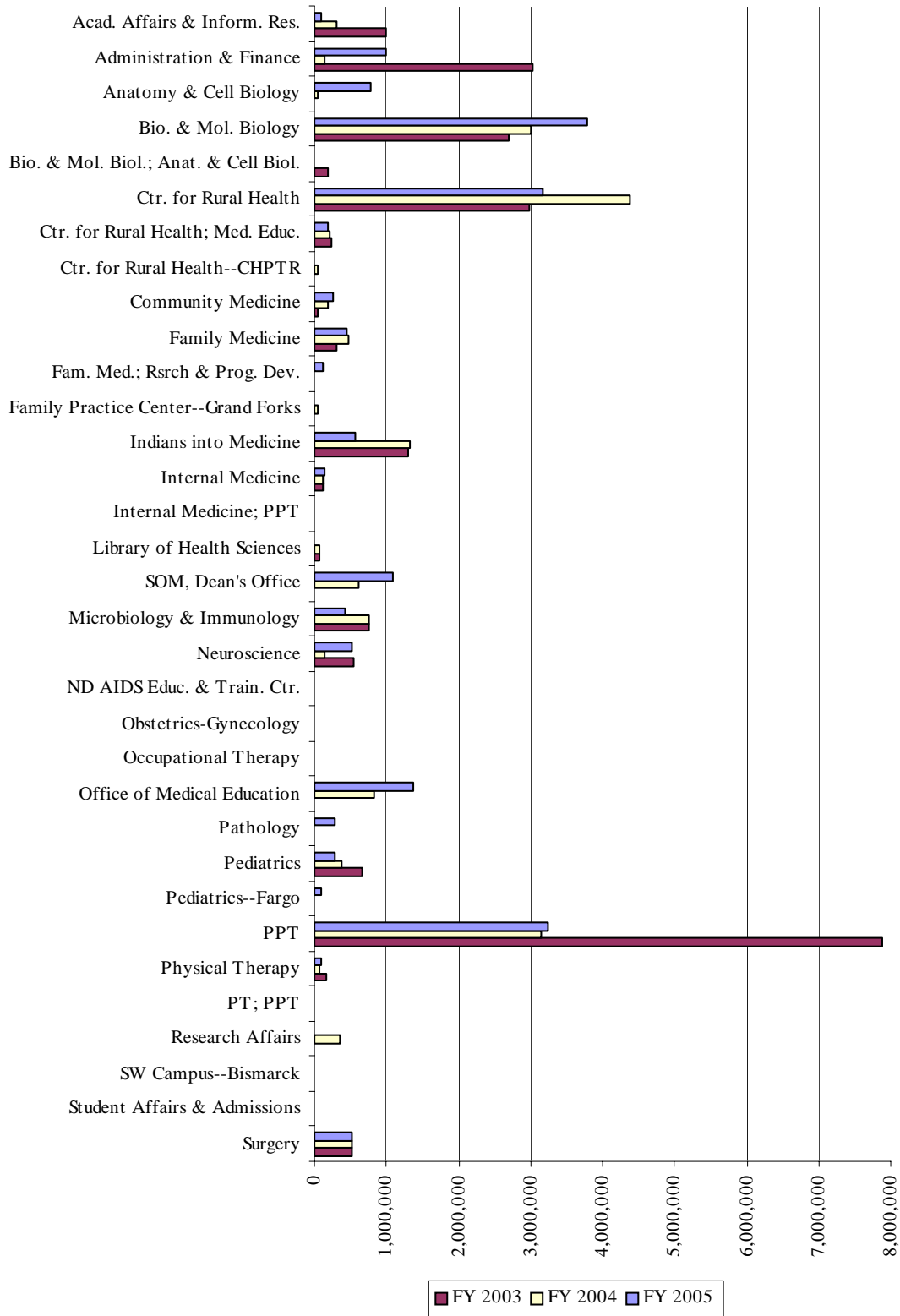
**Table 3-11. Grants and Contracts Received by the School of Law:  
FY 2003-2005**



**Table 3-11. Grants and Contracts Received by the School of Medicine and Health Sciences:  
FY 2003-FY 2005**

<b>Department</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Academic Affairs and Information Resources	\$ 1,000,000	\$ 298,050	\$ 99,410
Administration and Finance	3,018,759	144,340	988,234
Anatomy and Cell Biology	0	38,658	784,637
Biochemistry and Molecular Biology	2,698,732	3,003,322	3,790,022
Biochemistry and Molecular Biology; Anatomy and Cell Biology	196,510	0	0
Center for Rural Health	2,982,068	4,369,826	3,364,717
Center for Rural Health; Medical Education	234,344	216,184	0
Center for Rural Health-CHPTR	7,200	50,550	0
Community Medicine	36,665	189,557	252,570
Family Medicine	305,640	475,600	449,598
Family Medicine; Research and Program Development	0	0	124,118
Family Practice Center-Grand Forks	0	53,600	0
Indians into Medicine	1,302,610	1,314,035	574,048
Internal Medicine	120,000	122,500	132,105
Internal Medicine; Pharmacology, Physiology and Therapeutics	0	20,000	0
Library of Health Sciences	59,275	72,867	27,445
Medicine and Health Sciences; Dean's Office	0	615,094	1,092,274
Microbiology and Immunology	763,447	768,519	423,759
Neuroscience	541,641	137,878	520,326
North Dakota AIDS Education and Training Center	2,500	0	0
Obstetrics-Gynecology	0	0	0
Occupational Therapy	0	0	0
Office of Medical Education	0	820,761	1,366,715
Pathology	0	0	276,007
Pediatrics	668,179	372,192	279,784
Pediatrics-Fargo	0	4,360	86,812
Pharmacology, Physiology and Therapeutics	7,872,284	3,159,610	3,238,455
Physical Therapy	159,888	67,448	103,484
Physical Therapy; Pharmacology, Physiology and Therapeutics	20,500	0	0
Research Affairs	0	350,448	0
Southwest Campus-Bismarck	12,500	0	0
Student Affairs and Admissions	0	15,000	0
Surgery	529,956	529,956	529,956
<b>TOTALS</b>	<b>\$22,532,698</b>	<b>\$17,210,355</b>	<b>\$18,504,476</b>

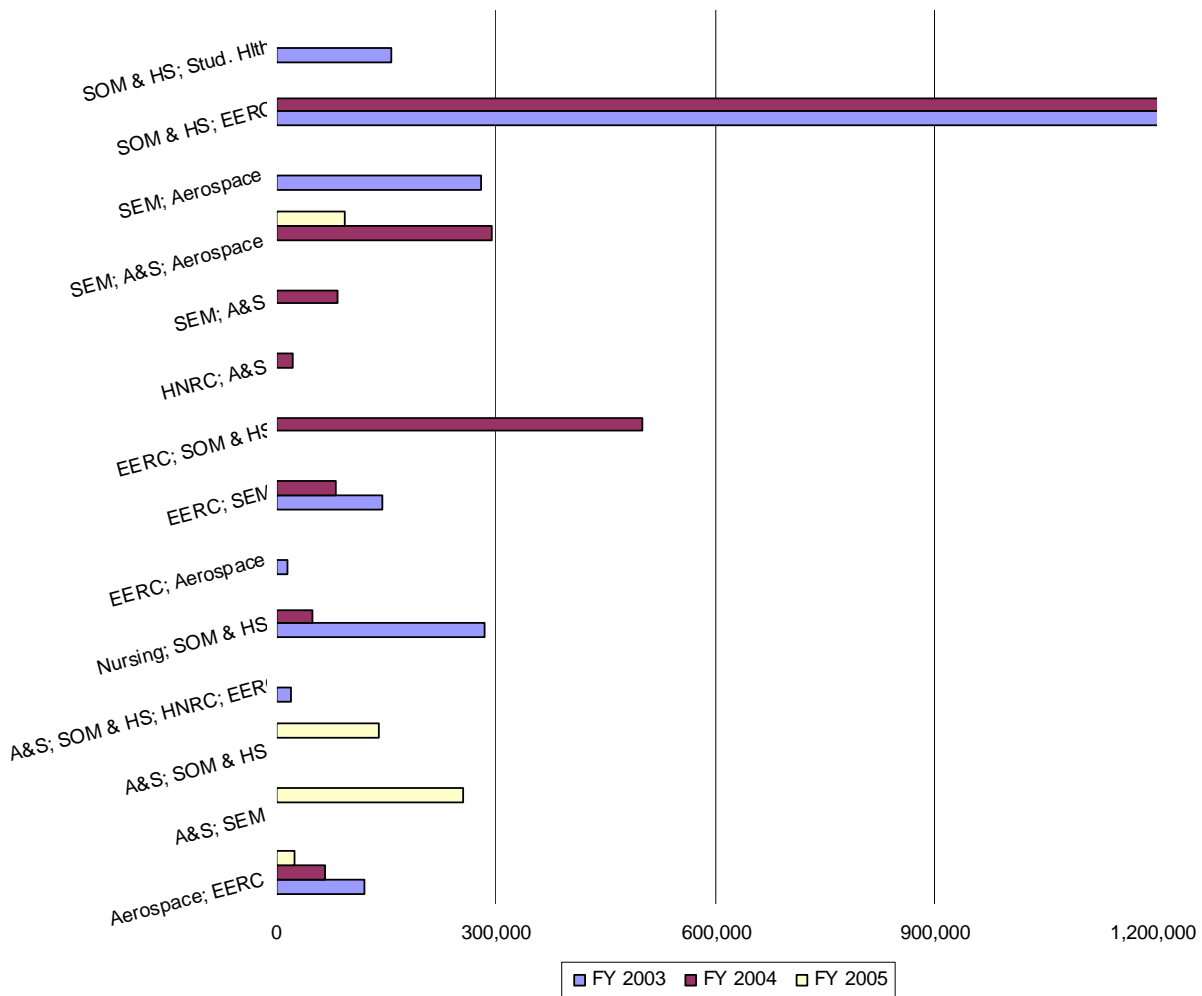
**Figure 3-12. Grants and Contracts Received by the School of Medicine and Health Sciences: FY 2003-FY 2005**



**Table 3-12. Multidisciplinary Grants and Contracts: FY 2003-FY 2005**

Department	FY 2003	FY 2004	FY 2005
College of Arts and Sciences; School of Engineering and Mines	\$ 120,986	\$ 66,507	\$ 23,507
College of Arts and Sciences; School of Medicine and Health Sciences	0	0	255,445
College of Arts and Sciences; School of Medicine and Health Sciences; Human Nutrition Research Center; Energy and Environmental Research Center	0	0	140,200
College of Nursing; School of Medicine and Health Sciences	20,500	0	0
Energy and Environmental Research Center; John D. Odegard School of Aerospace Sciences	285,000	50,000	0
Energy and Environmental Research Center; School of Engineering and Mines	15,000	0	0
Energy and Environmental Research Center; School of Medicine and Health Sciences	144,911	79,833	0
Human Nutrition Research Center; College of Arts and Sciences	0	500,000	0
John D. Odegard School of Aerospace Sciences; Energy and Environmental Research Center	0	20,886	0
School of Engineering and Mines; College of Arts and Sciences	0	84,000	0
School of Engineering and Mines; College of Arts and Sciences; John D. Odegard School of Aerospace Sciences	0	293,254	92,514
School of Engineering and Mines; John D. Odegard School of Aerospace Science	279,071	0	0
School of Medicine and Health Sciences; Energy and Environmental Research Center	1,306,339	1,315,792	0
School of Medicine and Health Sciences; Student Health Services	156,545	0	0
<b>TOTALS</b>	<b>\$2,328,352</b>	<b>\$2,410,272</b>	<b>\$511,666</b>

**Figure 3-13. Multidisciplinary Grants and Contracts: FY 2003-FY 2005**



The ND-EPSCoR Program is reported as a lump sum of money received by UND from both federal and state sources. These combined funds are then awarded to University faculty on a competitive basis. The principal investigators are located within several colleges including the John D. Odegard School of Aerospace Sciences, College of Arts and Sciences, School of Engineering and Mines, College of Nursing, and School of Medicine and Health Sciences. If the individual awards were posted to the faculty in the colleges ultimately receiving the funds, the total amount for those colleges would increase. For a complete listing of EPSCoR awards, please see Tables 4-1 - 4-9 (pages 63-65).

Table 3-13 presents a breakdown of grants and contracts received at the University of North Dakota in Fiscal Year 2005 by administrative unit and type of activity. Activities are classified as follows:

Academic Support includes projects intended to provide support services for the University's primary missions of instruction, research, and public service.

Construction includes funds designated for construction of new facilities or major remodeling of present facilities.

Instruction includes all activities that are part of the instructional program.

Institutional Support includes activities concerning the management, long-range planning, fiscal operations, personnel, etc., of the entire University.

Operation and Plant Maintenance includes funds for operation and maintenance of the physical plant.

Public Service includes all projects established primarily to provide noninstructional services beneficial to individuals and groups external to the University.

Research includes all projects specifically organized to produce research/creative outcomes.

Scholarships and Fellowships include grants to students resulting from selection by the institution or from an entitlement program.

Student Services includes activities whose primary purpose is to contribute to the student's emotional and physical well-being and intellectual, cultural, and social development outside an instructional program.

Figure 3-14 depicts the awards received in Fiscal Year 2005 by type of activity. It is noted that the "research" category accounted for 63.5 percent of the total, or \$43,274,200. This is a decrease from the \$45,667,386 in Fiscal Year 2004. Of the "research" total, 56.4 percent, or \$24,390,280, is attributed to EERC, compared to 46.6 percent, or \$21,284,751 in Fiscal Year 2004.

In Fiscal Year 2004, 6.6 percent of the total was attributed to "instruction"; this percentage decreased to 5.4 percent in Fiscal Year 2005. "Public service" activities increased from 26.8 percent to 28.8 percent in Fiscal Year 2005. "Scholarships/fellowships" decreased from .27 percent to .07 percent. "Student services" increased slightly, from .79 percent in Fiscal Year 2004 to .82 percent in Fiscal Year 2005.

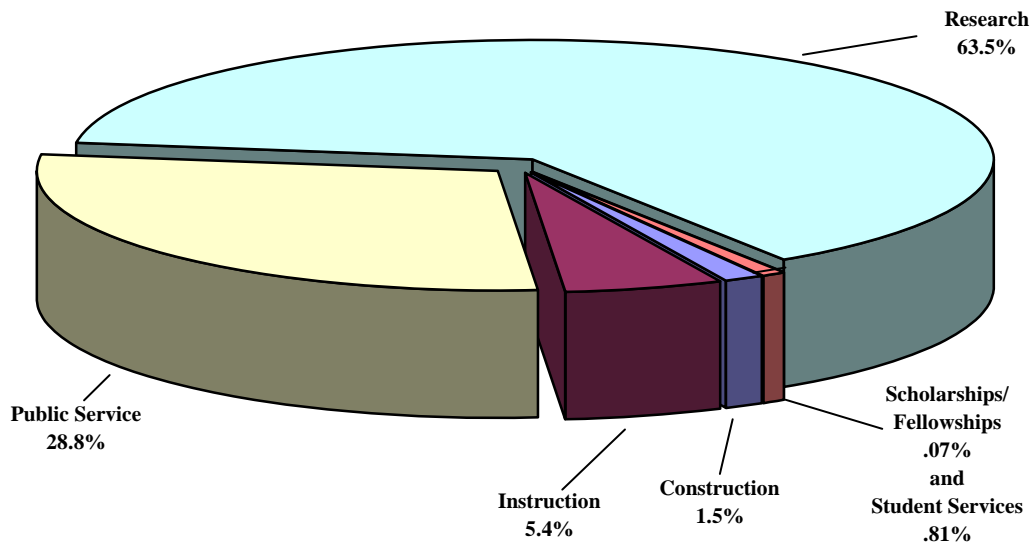
Table 3-14 presents information concerning activities funded by external grants and contracts during each year since 1982. The classification scheme was changed in Fiscal Year 1993; therefore, the table provides information based on the "old" system utilized Fiscal Years 1982-1992 and the "new" system established in Fiscal Year 1993.

**Table 3-13. Grants and Contracts Received at UND by Unit and Type of Activity: FY 2005**

Unit	Academic Support	Construction	Instruction	Institutional Support	Operation/ Plant Maintenance	Public Service	Research	Scholarships/ Fellowships	Student Services	TOTAL
Athletics; Student Health						10,000				\$ 10,000
EERC							24,390,280			24,390,280
Aerospace						5,050,063	4,254,785			9,304,848
A&S			690,399			215,244	1,421,884			2,327,527
A&S; SEM							23,507			23,507
A&S; SOM&HS							255,445			255,445
A&S SOM&HS; HNRC; EERC							140,200			140,200
BPA						1,089,007				1,089,007
Chester Fritz Library						750				750
EHD			802,770			1,455,279				2,258,049
SEM						158,084	1,743,586			1,901,670
SEM; A&S; Aerospace							92,514			92,514
Law School						2,116,089				2,116,089
SOM&HS		984,159	1,131,761			6,819,323	9,565,158	4,075		18,504,476
Nursing			1,052,219			176,415	4,925	41,591		1,275,150
VP for Finance & Operations						232,966				232,966
HNRC						750,000	94,416			844,416
North Dakota EPSCoR							1,287,500			1,287,500
Enrollment Management						1,174,039			550,753	1,724,792
Outreach Programs						289,102				289,102
Student Services						62,401				62,401
<b>TOTALS</b>		<b>\$984,159</b>	<b>\$3,677,149</b>			<b>\$19,598,762</b>	<b>\$43,274,200</b>	<b>\$45,666</b>	<b>\$550,753</b>	<b>\$68,130,689</b>
<b>Percent of Total</b>		<b>1.5%</b>	<b>5.4%</b>			<b>28.8%</b>	<b>63.5%</b>	<b>0.07%</b>	<b>0.81%</b>	<b>100.0 %</b>



**Figure 3-14. Grants and Contracts Received at UND by Type of Activity: FY 2005**



**Table 3-14. Grants and Contracts Received at UND by Type of Activity: FY 1982-FY 2005**

Fiscal Year	Academic Support	Construction	Fellowship/ Training	Instruction	Institutional Support	Operation/ Plant Maintenance	Program Development	Public Service	Research	Scholarships/ Fellowships	Service	Student Services	Totals
1982			360,731				3,059,199		4,826,133		1,715,373		9,961,436
1983			537,485				2,429,723		9,113,943		1,483,173		13,564,324
1984			1,282,226				3,011,799		11,907,267		1,492,089		17,693,381
1985			2,311,000				2,697,873		16,908,000		1,642,582		23,559,455
1986			1,347,250				3,900,487		17,352,083		1,582,079		24,181,899
1987			859,731				3,606,388		15,961,853		2,222,425		22,650,397
1988			633,422				3,961,556		16,859,043		2,332,793		23,786,814
1989			452,028				4,985,270		18,070,713		1,607,248		25,115,259
1990			902,333				6,767,134		23,957,434		1,290,531		32,917,432
1991		4,022,590	2,200,994				9,427,634		22,182,157		1,974,575		39,807,950
1992		11,525,304	1,899,373				3,358,850		18,953,674		3,110,402		38,847,603
1993		1,808,080		5,759,241				6,281,624	26,271,516	110,006		373,284	40,603,751
1994				6,910,896	65,146	71,153		8,655,527	24,339,178	344,212		1,087,453	41,473,565
1995		5,902,269		4,173,367				7,149,048	27,196,400	251,681		759,808	45,432,573
1996				4,006,516	71,879			9,732,717	35,751,397	180,375		1,319,314	51,062,198
1997	23,000	138,000		3,252,251				7,562,736	22,310,315	116,418		275,293	33,678,013
1998				3,794,036				7,045,530	22,654,531	88,043		1,201,004	34,783,144
1999				2,437,323	29,805			13,218,416	21,616,458	69,510		425,620	37,797,132
2000				4,877,291		781,803		9,341,656	25,828,094	346,481		440,630	41,615,955
2001				3,628,726		23,000		10,705,565	29,890,397	514,368		459,519	45,221,575
2002				4,863,330		4,000		11,493,458	37,680,826	102,375		525,786	54,669,775
2003				3,648,105		2,954,950		11,907,166	41,880,185	230,382		554,954	61,175,742
2004				4,612,752		0		18,640,325	45,667,386	190,889		550,753	69,662,105
2005		984,159		3,677,149				19,598,762	43,274,200	45,666		550,753	68,130,689



## SECTION II. UNRESTRICTED FUNDS ACTIVITY

In addition to the external sources of sponsored research funding discussed in Section I, research and scholarly activities support is provided by several sources at the University of North Dakota.

### **A. Institutional Research Fund (IRF)**

The Institutional Research Fund (IRF) was established in Fiscal Year 1982 to promote, expand, and reward research activities on the University of North Dakota (UND) campus. Funds deposited in the IRF are equivalent to 50 percent of the indirect costs received from those sponsored research and service projects which generated indirect costs at the full, allowable government-approved rate or at a rate which was the maximum allowed by the sponsor. Monies in the IRF, in turn, are allocated through the following three programs.

#### **1. RD&C Research Fund**

The RD&C Research Fund was allocated \$114,433 in Fiscal Year 2005, \$2,863 was carried over from Fiscal Year 2004, and \$50,000 was provided by the Vice President for Research for Arts, Humanities and Social Sciences Awards. Expenditures from the Research Fund are discussed in detail in Section III, starting on page 45. These funds were distributed to University faculty and units during Fiscal Year 2005 by the Interim Director of Research Development and Compliance in response to formal requests.

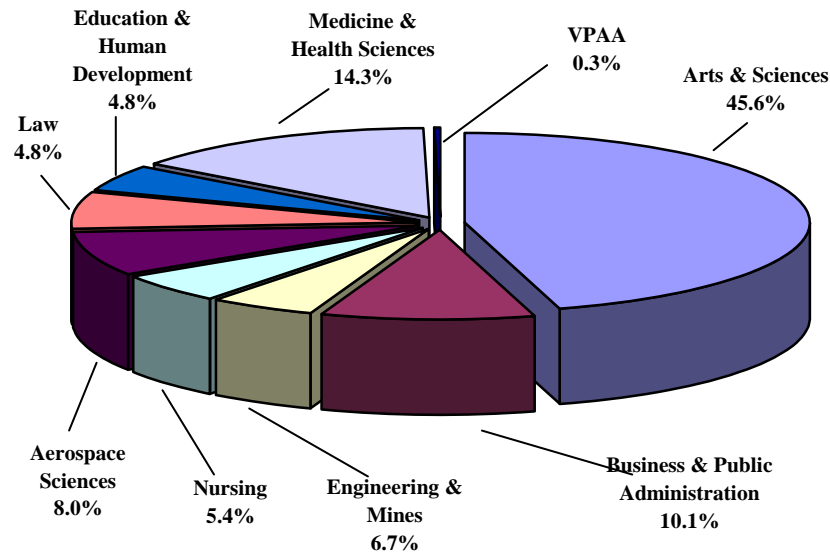
#### **2. Senate Scholarly Activities Committee**

A total of \$57,217 was allocated from the IRF for distribution by the Senate Scholarly Activities Committee (SSAC) in Fiscal Year 2005, and \$1,300 was carried over from Fiscal Year 2004. The Committee also received a supplemental, one-time award of \$50,000 from the Vice President for Research to be expended during Fiscal Year 2005. The SSAC meets several times each year to award grants which support research, travel, and publication activities of faculty and staff. These funds are requested through grant proposals submitted to the SSAC. Deadlines for submission of proposals are announced in the *University Letter* and on RD&C's Homepage. During Fiscal Year 2005, the SSAC awarded \$112,104 (includes previously awarded funds that were returned to the Committee. Nine New Faculty Scholar Awards were made in Fiscal Year 2005, for a total of \$37,775. Individual awards made by the SSAC are listed in Appendix D. Table 3-15 and Figure 3-15 show the distribution of SSAC awards among campus units. Table 3-16 and Figure 3-16 show the distribution by the type of award.

**Table 3-15. Awards Made by the Senate Scholarly Activities Committee  
by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$ 51,121
College of Business and Public Administration	11,300
College of Education and Human Development	5,399
College of Nursing	6,038
John D. Odegard School of Aerospace Sciences	9,068
School of Engineering and Mines	7,496
School of Law	5,326
School of Medicine and Health Sciences	16,037
Vice President for Academic Affairs and Provost	319
<b>TOTAL SENATE SCHOLARLY ACTIVITIES COMMITTEE AWARDS</b>	<b>\$112,104</b>

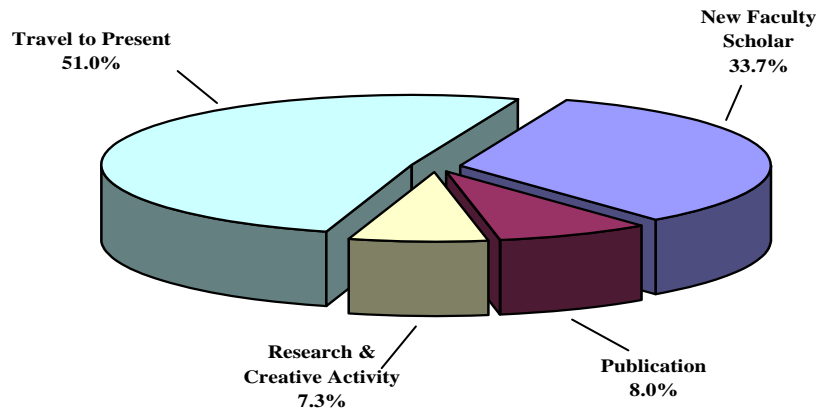
**Figure 3-15. Awards Made by the Senate Scholarly Activities Committee by University Unit: FY 2005**



**Table 3-16. Awards Made by the Senate Scholarly Activities Committee by Type of Award: FY 2005**

Unit	Amount
New Faculty Scholar Awards	\$ 37,775
Publication	8,922
Research and Creative Activity	8,228
Travel to Present	57,179
<b>TOTAL</b>	<b>\$112,104</b>

**Figure 3-16. Awards Made by the Senate Scholarly Activities Committee by Type of Award: FY 2005**



### 3. Indirect Cost Monies Sharing Program

Forty-eight departments/organized research units benefited from the University's policy of returning, through the IRF, a portion of the indirect costs generated by external awards. These were funds from awards in previous years but expended in Fiscal Year 2004; the rebate share was awarded to the respec-

tive departments in Fiscal Year 2005. University Senate policy states that each unit receiving indirect cost rebate monies must expend those monies for research-related purposes in keeping with a plan submitted to, and approved by, the Senate Scholarly Activities Committee.

The staff of the Budget Office calculates the departmental allocations from the IRF based on the indirect costs generated in a given fiscal year. This means that the departmental allocations are based on funds actually expended, rather than on funds awarded. Thus, there is a delay between the date of the award of a grant and the availability of the corresponding indirect cost return monies to the originating department or unit. A total of \$2,766,579 was returned to the departments/organized research units in Fiscal Year 2005. This is an increase of 27.7 percent from Fiscal Year 2004 when \$1,977,338 was returned to originating units. The IRF allocations are summarized in Table 3-17.

**Table 3-17. IRF Allocations Generated in FY 2004 and Awarded in FY 2005**

<b>Department/Organized Research Unit</b>	<b>Amount</b>	<b>College Totals</b>
<b>AEROSPACE SCIENCES</b>	\$ 628,009	\$ 628,009
<b>ARTS AND SCIENCES</b>		148,590
Anthropology	30,348	
Biology	62,284	
Chemistry	27,504	
College of Arts and Sciences	7,196	
Communication Sciences and Disorders	3,640	
Physics	11,744	
Sociology	5,874	
<b>BUSINESS AND PUBLIC ADMINISTRATION</b>		65,067
Bureau of Governmental Affairs	1,349	
Center for Innovation	6,826	
College of Business and Public Administration	56,892	
<b>EDUCATION AND HUMAN DEVELOPMENT</b>		28,542
Children and Family Services Training Center	17,791	
College of Education and Human Development	5,051	
Social Work	5,700	
<b>ENGINEERING AND MINES</b>		81,736
Chemical Engineering	28,644	
Civil Engineering	3,920	
Electrical Engineering	4,931	
Geology and Geological Engineering	31,717	
Mechanical Engineering	12,444	
School of Engineering and Mines	80	
<b>LAW</b>	57,382	57,382
<b>MEDICINE AND HEALTH SCIENCES</b>		1,683,095
Anatomy and Cell Biology	38,478	
Biochemistry and Molecular Biology	161,905	
Center for Rural Health	104,648	
Community Medicine and Rural Health	7,989	
Family Practice Center-Grand Forks	3,058	
Internal Medicine	93	
Library of the Health Sciences	923	
Microbiology and Immunology	106,017	
Neuroscience	50,327	

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<b>Table 3-17. Continued</b>		
Office of the Dean, School of Medicine and Health Sciences	736,354	
Office of Medical Education	9,182	
Pathology	245	
Pediatrics-Fargo	38,138	
Pharmacology, Physiology and Therapeutics	218,987	
Physiology	1,756	
Physical Therapy	1,667	
Research Affairs	86,347	
School of Medicine and Health Sciences	48,970	
Surgery	68,011	
<b>NURSING</b>		26,313
College of Nursing	24,292	
Nutrition and Dietetics	2,021	
<b>VICE PRESIDENT FOR ACADEMIC AFFAIRS AND PROVOST</b>		101
Chester Fritz Library	101	
<b>VICE PRESIDENT FOR FINANCE AND OPERATIONS</b>		10,626
Environmental Training Institute	9,248	
Facilities	141	
University Children's Center	1,237	
<b>VICE PRESIDENT FOR STUDENT AND OUTREACH SERVICES</b>		37,119
Native American Programs	1,661	
Outreach Programs	496	
Talent Search	34,962	
	(Rounding)	(1)
	<b>GRAND TOTAL</b>	<b>\$2,766,579</b>
		<b>\$2,766,579</b>

\* Individual awards were rounded to the nearest \$1

### **B. State-Appropriated Funds for Research**

The State also appropriates funds to the University for research-related activities. The distribution of state-appropriated funds for research in Fiscal Year 2005 is shown in Table 3-18.

**Table 3-18. State-Appropriated Funds for Research: FY 2005**

<b>Research/Service Activity</b>	<b>Full Amount</b>	<b>Salaries</b>
American Indian Program-Grant Writer	\$ 12,094	\$ 10,624
Fringe Benefits		818
Bureau of Educational Services and Applied Research	35,000	11,000
Faculty Research Seed Money	305,457	133,335
Fringe Benefits		17,334
Fringe Benefits – Research	25,272	25,272
Research – Workstudy	54,608	54,608
Vice President for Research Operating	25,501	
<b>TOTAL</b>	<b>\$457,932</b>	<b>\$252,991</b>

### **C. Faculty Research Seed Money Fund**

The Faculty Research Seed Money Fund, a grassroots faculty initiative at the University, was established in Fiscal Year 2000 to help faculty members gather data to strengthen their research proposals to funding organizations such as the National Science Foundation (NSF), the National Institutes of Health (NIH), and other governmental and private agencies. Funds are provided through a partnership between the City of Grand Forks, the UND Foundation and the University of North Dakota.

In Fiscal Year 2005, 17 awards totaling \$415,600 were awarded to faculty in 12 departments. Table 3-19 lists the Faculty Research Seed Money awards which were made in Fiscal Year 2005. The winning proposals were selected by a review committee consisting of the chairs of eight disciplinary review committees. The Committee based its choices on the likelihood that information gathered through these projects would help make the researchers more competitive in the national funding arena. Attracting more national funding to the University and increasing the level of faculty research at UND are goals of the Fund. UND will continue to work to encourage growth in the fund. The Fund is administered by Research Development and Compliance. Table 3-20 and Figure 3-17 summarize the Faculty Research Seed Money awards by University Unit.

As of June 30, 2005, \$54,059,344 had been requested in external grant funds related to the FRSM awards, and \$5,859,645 had been received.

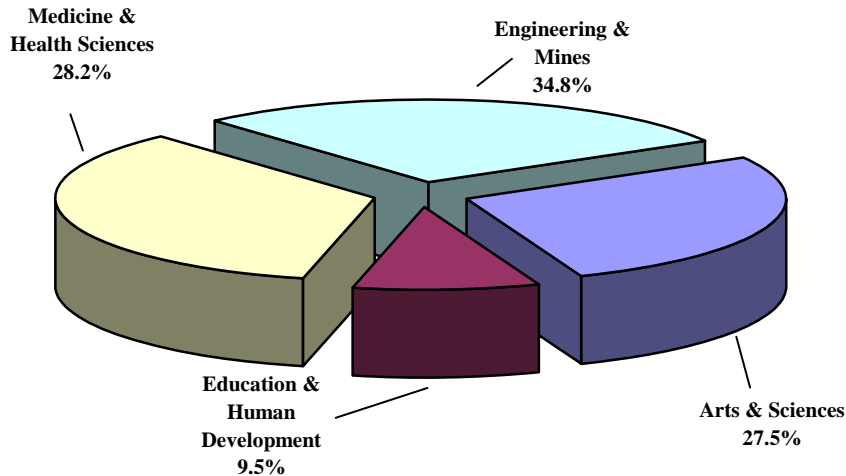
**Table 3-19. Faculty Research Seed Money Awards: FY 2005**

<b>Principal Investigator</b>	<b>Department</b>	<b>Title</b>	<b>Amount</b>
Conway, Patricia G.	Social Work	The Impact of Child and Family Service Reviews on Child Welfare	\$ 16,167
Costes, Therese S.	Music	Developing a Model for Music Therapy in the Public School System	23,000
Derenne, Adam P.	Psychology	(Untitled)	15,000
Ferraro, F. Richard	Psychology	Occupation Type, Pesticide Exposure, and Neuropsychological Function: The Case for Agricultural Workers	20,000
Ghassemi, Ahmad	Geology and Geological Engineering	Modeling Reactive Fluid Flow in a Fracture in Hot Permeable Rock	25,680
Hartman, Joseph H.	Geology and Geological Engineering	A World Apart at the End of the Cretaceous: The Evolution and Extinction of Mollusks Near the K/T Boundary on Peninsular India--Implications for the Timing of Indian-Eurasian Faunal Interchange and Plate Convergence	30,000
Kolodka, Edward B.	Chemical Engineering	Impact Modified Biodegradable Polymers for Food Handling Applications	23,412
Lane, Jason E.	Teaching and Learning	Globalization and Higher Education: Understanding the Impact and Import of Transnational Institutions	23,113
Lim, Yeo H.	Civil Engineering	Hydraulic Modeling of Open Channels and Control Structures	40,000
Miller, Joseph C.	Psychology	Social Skills Training for Optimization of Low Vision	13,233
Muggli, Darrin S.	Chemical Engineering	Novel Reactor and Catalyst Design for Emerging Remediation Technologies	25,534
Reese, Ty M.	History	Sortings and Slaves: Cross-Cultural Trade and Interaction at Cape Coast, 1750-1807	3,126
Rosenberger, Thad A.	Pharmacology, Physiology and Therapeutics	Phospholipases A2 and Disease Progression in the EAE Mouse	25,831
Sens, Donald A.	Surgery	Human Tissue Bank	40,000
Sticca, Robert P.	Surgery	Optimal Conditions for Dendritic Cell Vaccination in Metastatic Colorectal Cancer	25,673
Wu, Min M.	Biochemistry and Molecular Biology	Defining the Mechanism of Oxidative DNA Damage in Primary Lung Cells	25,831
Zhao, Julia X.	Chemistry	A Light-Emitting Nanosensor for Ultra-Sensitive Capturing and Signaling of Selenium	40,000
<b>TOTAL FACULTY RESEARCH SEED MONEY AWARDS</b>			<b>\$ 415,600</b>

**Table 3-20. Awards Made by the Faculty Research Seed Money Council by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$114,359
College of Education and Human Development	39,280
School of Engineering and Mines	144,626
School of Medicine and Health Sciences	117,335
<b>TOTAL</b>	<b>\$415,600</b>

**Figure 3-17. Awards Made by the Faculty Research Seed Money Council by University Unit: FY 2005**



**D. Grantsmanship Fund**

Beginning in Fiscal Year 2000, RD&C and the University Writing Center have offered a proposal writing workshop for faculty during the Spring Semester. The goals of the workshop are to increase faculty proposal submissions to external funding agencies and to assist faculty in improving proposal quality. At the beginning of the Spring Semester, a call for applications to the workshop is sent to all academic departments and distributed in the *University Letter*. Applicants are requested to select a faculty mentor and to submit a plan for a proposal that would be developed during the workshop. The applications are competitive and each year the six applications viewed as most likely to succeed in submission to an external funding agency are selected. Applicants whose proposals are not selected are encouraged to continue developing their proposal and to visit with RD&C staff for assistance. In recognition that faculty time is valuable, RD&C offers compensation of \$1,000 to both the applicant and mentor upon submission of the proposal to an external funding agency.

The workshop has exceeded expectations in reaching the established goals. Participation in the workshop has increased proposal submission by the participants and has resulted in significant success. As of June 30, 2005, 45 faculty and their mentors have participated in the workshop. Thirty-nine of the proposals developed in the workshop have been submitted to external agencies. As of July 15, 2005, the 45 participants had submitted 211 proposals requesting \$1,841,522 and 36 of the proposals, totaling \$2,121,614, had been awarded. Sixty-five proposals, requesting a total of \$21,868,873 are pending. Table 3-21 lists Spring 2005 workshop participants. Table 3-22 lists awards made during Fiscal Year 2005 to workshop participants who submitted their proposals (because proposal deadline dates vary, and some occur only once a year, participants often are unable to submit their proposal until the next fiscal year; thus, the awards made in Fiscal Year 2005 include participants from past workshops.) Table 3-23 and Figure 3-18 show the breakdown of the same awards by college.

**Table 3-21. Grant Writing Mentorship Program Participants: FY 2005**

Faculty Grant Writer/ Department	Faculty Mentor/Department	Potential Sponsor	Estimated Proposal Amount
Lei, Saobo (Pharmacology, Physiology and Therapeutics)	Van A. Doze (Pharmacology, Physiology and Therapeutics)	National Science Foundation	\$ 500,000
McLaughlin, Craig A. (Space Studies)	Michael D. Mann (Chemical Engineering)	National Science Foundation	400,000
Moreno, Juana (Physics)	Kathryn A. Thomasson (Chemistry)	American Chemical Society	35,000
Rami, Manish K. (Communication Sciences and Disorders)	John P. Madden (Communication Sciences and Disorders)	National Institutes of Health	139,600
Simmons, Rebecca B. (Biology)	Peter J. Meberg (Biology)	U.S. Department of Agriculture	513,479
Tkach, Vasyl (Biology)	Isaac J. Schlosser (Biology)	National Science Foundation	400,000
<b>TOTAL</b>			<b>\$1,988,079</b>

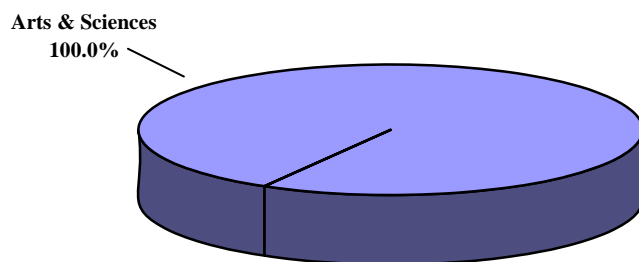
**Table 3-22. Awards Made to Grantsmanship Workshop Participants After Submission of a Proposal to An External Agency: FY 2005**

Principal Investigator	Department	Title	Amount Awarded
Bradley, April R.	Psychology	Grantsmanship Workshop Award	\$ 1,000
Moreno, Juana	Physics	Grantsmanship Workshop Award	1,000
Petros, Thomas V.	Psychology	Grantsmanship Workshop Award (Mentor)	1,000
Thomasson, Kathryn A.	Chemistry	Grantsmanship Workshop Award (Mentor)	1,000
<b>TOTAL GRANTSMANSHIP WORKSHOP AWARDS</b>			<b>\$ 4,000</b>

**Table 3-23. Grantsmanship Workshop Awards by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$ 4,000
<b>TOTAL</b>	<b>\$ 4,000</b>

**Figure 3-18. Grantsmanship Workshop Awards by University Unit: FY 2005**



**E. North Dakota EPSCoR Travel Fund**

In Fiscal Year 2005, RD&C received \$15,000 from the North Dakota EPSCoR Program to be awarded to faculty and graduate students for travel. Recipients presented papers/posters at twenty-three different conferences and attended two workshops. Table 3-24 lists the awards made during Fiscal Year 2004. Table 3-25 and Figure 3-19 show the breakdown of those awards by University unit.

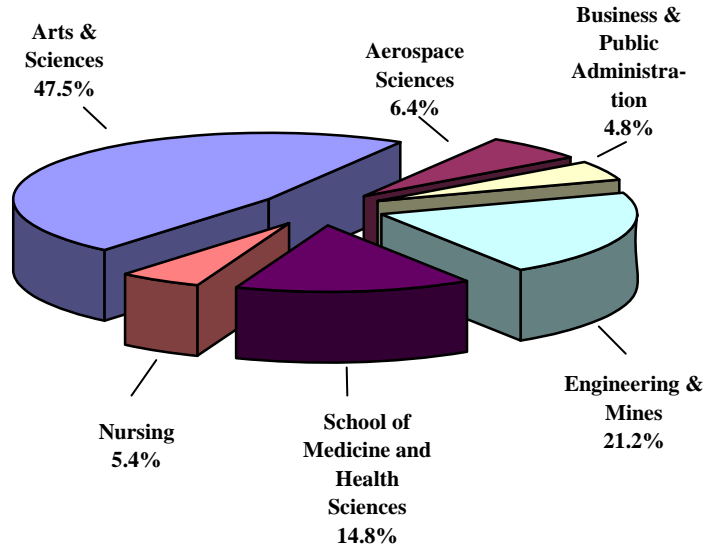
**Table 3-24. North Dakota EPSCoR Travel Awards: FY 2005**

<b>Principal Investigator</b>	<b>Department</b>	<b>Title</b>	<b>Amount</b>
Azenkeng, Alexander	Chemistry	Travel to Present a Paper at the Seventh Congress of the World Association of Theoretically Oriented Chemists	\$ 500
Balakrishnan, Lata	Biochemistry and Molecular Biology	Travel to Present a Paper at a DNA Tumor Virus Conference	1,200
Barton, Jay B.	Space Studies	Travel to Present a Poster at the International Space Workshop "Space Development: Theory and Practice – 2004"	500
Carlson, Anna Marie	Psychology	Travel to Present a Paper at the 66th Canadian Psychological Association Annual Convention	357
Catlin, Katie	Space Studies	Travel to Present a Paper at the American Institute of Aeronautics and Astronautics (AIAA) Region V Student Conference	50
de Silva, Shanaka L.	Space Studies	Travel to Present a Paper at the Second Annual Asian Oceanic Geosciences Society (AOGS)	400
Delbridge, Ewan E.	Chemistry	Travel to Present a Paper at the 24th Rare Earth Conference	500
Diez, C. Ray	Technology	Travel to Present a Paper at the 3rd ASEE International Colloquium on Engineering Education	709
Forlemu, Neville	Chemistry	Travel to Present a Paper at the 49th Biophysical Society Annual Meeting	500
Goodwin, Brett J.	Biology	Travel to Present a Paper at the Ecological Society of America Annual Meeting	550
Harpel, Christopher	Geology and Geological Engineering	Travel to Present a Paper at the General Assembly of the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)	500
Haugen, Erin N.	Psychology	Travel to Present a Paper at the 2004 Association for the Advancement of Behavior Therapy Conference	500
Hoffmann, Mark R.	Chemistry	Travel to Present a Poster at "Molecular Quantum Mechanics: The No Nonsense Path to Success (An International Conference in Honour of Professor Nicholas C. Handy)"	2,235
Jurgens, Chris	Pharmacology, Physiology and Therapeutics	Travel to Present a Paper at the Experimental Biology 2005 Conference	500
Kim, Ju H.	Physics	Travel to Present a Paper at the American Physical Society March Meeting 2005	500
Kulkarni, Apoorva	Chemical Engineering	Travel to Present a Paper at the 19th North American Catalysis Society Conference	500
Morris, Donna L.	Family and Community Nursing	Travel to Attend the 2005 National Science Foundation Regional Grants Conference	804
Nygren, Andrew	Geology and Geological Engineering	Travel to Present a Paper at the Geothermal Resources Council (GRC) Annual Meeting	500
Palamalai, Vikram	Biochemistry and Molecular Biology	Travel to Present a Paper at the Association for Research in Vision and Ophthalmology (ARVO) Meeting	500
Pang, Brandee	Geography	Travel to Present a Paper at the 2004 American Geophysical Union Conference	437
Popova, Inna	Chemistry	Travel to Present a Paper at the 229th American Chemical Society (ACS) National Meeting	500
Spencer, Eben	Geology and Geological Engineering	Travel to Present a Paper at the Midwest Environmental Chemistry Workshop	365
Tao, Qingfeng	Geology and Geological Engineering	Travel to Present a Paper at the 40th U.S. Rock Mechanics Symposium	500
Tyapochkin, Eduard	Chemistry	Travel to Present a Paper at the 229th American Chemical Society (ACS) National Meeting	500
Won, Chang-Hee	Electrical Engineering	Travel to Attend a National Science Foundation (NSF) Workshop in Rapid City, South Dakota	100
Zahui, Marcellin	Mechanical Engineering	Travel to Present a Paper at the American Society of Mechanical Engineers Conference	700
<b>TOTAL EPSCoR TRAVEL AWARDS</b>			<b>\$14,907</b>

**Table 3-25. North Dakota EPSCoR Travel Awards by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$ 7,079
College of Business and Public Administration	709
College of Nursing	804
John D. Odegard School of Aerospace Sciences	950
School of Engineering and Mines	3,165
School of Medicine and Health Sciences	2,200
<b>TOTAL EPSCoR TRAVEL AWARDS</b>	<b>\$14,907</b>

**Figure 3-19. North Dakota EPSCoR Travel Awards by University Unit: FY 2005**



**F. Vice President for Academic Affairs Awards**

During Fiscal Year 2005 the Vice President for Academic Affairs awarded \$210,250 to new faculty to help them establish their research programs and develop proposals for external support. Table 3-26 shows the distribution of those awards among campus units.

**Table 3-26. Start-Up Awards Made by the Vice President for Academic Affairs by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$115,250
John D. Odegard School of Aerospace Sciences	50,000
School of Engineering and Mines	45,000
<b>TOTAL VICE PRESIDENT FOR ACADEMIC AFFAIRS START-UP AWARDS</b>	<b>\$210,250</b>

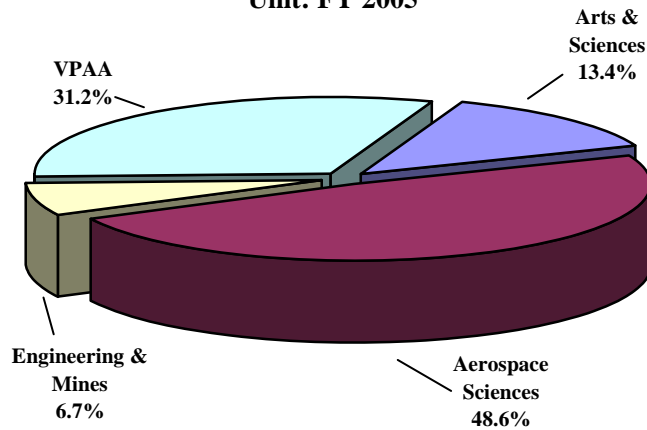
**G. Vice President for Research Awards**

During Fiscal Year 2005, the Vice President for Research awarded \$371,517 to faculty as matching funds for grants or equipment purchases. Table 3-27 and Figure 3-20 show the distribution of those awards among campus units. The Vice President also awarded \$191,059 in discretionary funds (\$41,400 of this is included in Faculty Research Seed money totals; \$4,000 is shown under the Grant Writing Workshop; \$50,000 is included in Research Development and Compliance Arts, Humanities, and Social Sciences totals; the remainder is included in the tables/figures below). Table 3-28 and Figure 3-21 show the breakdown of those awards by college.

**Table 3-27. Matching Awards Made by the Vice President for Research  
by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$ 49,891
John D. Odegard School of Aerospace Sciences	180,626
School of Engineering and Mines	25,000
Vice President for Academic Affairs	116,000
<b>TOTAL VICE PRESIDENT FOR RESEARCH MATCHING AWARDS</b>	<b>\$371,517</b>

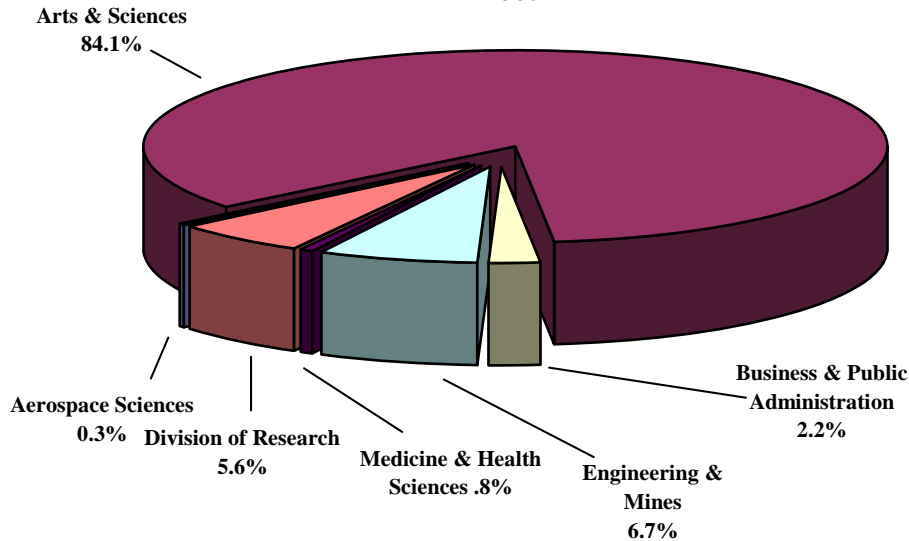
**Figure 3-20. Matching Funds Awards Made by  
the Vice President for Research by University  
Unit: FY 2005**



**Table 3-28. Discretionary Awards Made by the Vice President for Research  
by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$72,456
College of Business and Public Administration	3,250
John D. Odegard School of Aerospace Sciences	500
School of Engineering and Mines	10,000
School of Medicine and Health Sciences	1,107
Vice President for Research	8,346
<b>TOTAL VICE PRESIDENT FOR RESEARCH DISCRETIONARY AWARDS</b>	<b>\$95,659</b>

**Figure 3-21. Discretionary Awards Made by the Vice President for Research by University Unit:  
FY 2005**



**H. Unrestricted Awards at the University of North Dakota by Type of Activity and Unit**

Table 3-29 and Figure 3-22 show the distribution of Unrestricted Awards at the University of North Dakota during Fiscal Year 2005 by type of activity.

**Table 3-29. Unrestricted Awards by Type of Activity: FY 2005**

Awarding Unit	Lecture Series and Conferences	Matching	Publication	Research	Start-Up	Travel to Present	Travel (Other)	TOTAL
Faculty Research Seed Money Council				\$415,600				\$ 415,600
Grantwriting Workshop Awards				4,000				4,000
Research Development and Compliance Research Fund	\$5,000	\$ 46,600	\$ 250	54,280	\$ 57,000	\$ 4,730	\$1,075	168,935
Senate Scholarly Activities Committee			8,922	46,003		57,179		112,104
Vice President for Academic Affairs Start-Up Awards					210,250			210,250
Vice President for Research Matching Awards		371,517						371,517
Vice President for Research Discretionary Awards*		95,659						95,659
<b>TOTAL AWARDS</b>	<b>\$5,000</b>	<b>\$513,775</b>	<b>\$9,172</b>	<b>\$519,883</b>	<b>\$267,250</b>	<b>\$61,909</b>	<b>\$1,075</b>	<b>\$1,378,064</b>

\*Additional awards made from this fund are included in the total for Faculty Research Seed Money (\$41,400), the Proposal Writing Workshop (\$4,000), and Research, Development, and Compliance (\$50,000).

**Figure 3-22 Unrestricted Awards at UND by Type of Activity: FY 2005**

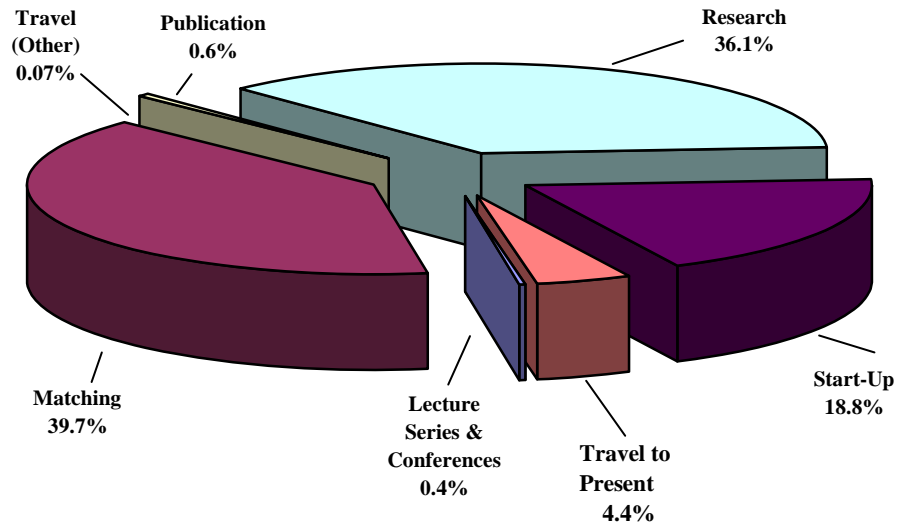


Table 3-30 and Figure 3-23 show the distribution of those awards among University units.

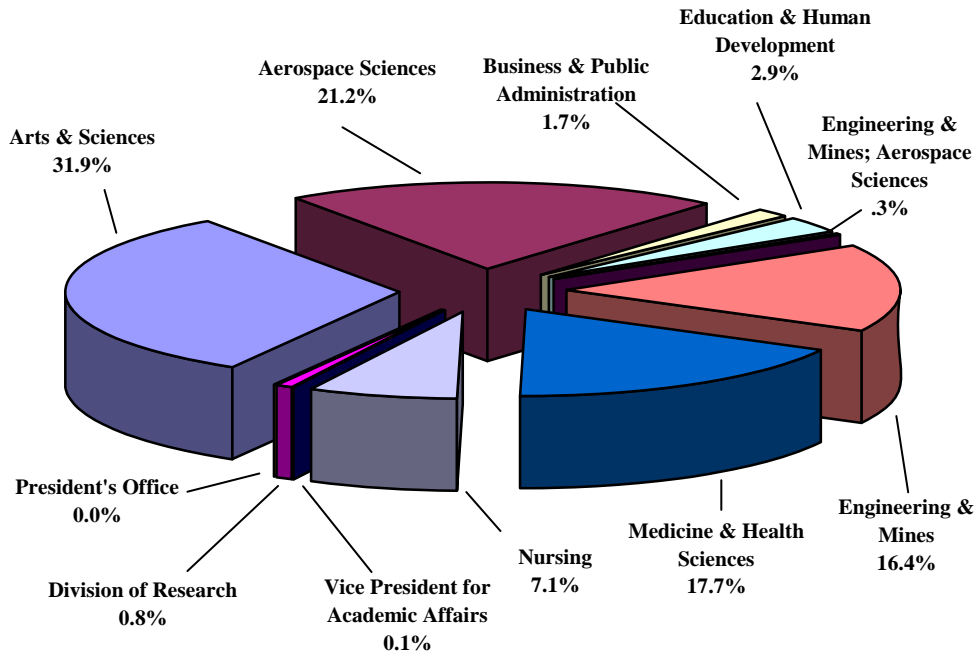
**Table 3-30. Unrestricted Awards by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$ 524,686
College of Business and Public Administration	14,550
College of Education and Human Development	49,679
College of Nursing	11,788
John D. Odegard School of Aerospace Sciences	246,944
School of Engineering and Mines	263,872
School of Law	5,326
School of Medicine and Health Sciences	136,554
Vice President for Academic Affairs	116,319
Vice President for Research	8,346
<b>TOTAL UNRESTRICTED AWARDS</b>	<b>\$1,378,064</b>

**I. Research Funds Provided by Departments, Colleges, and the Alumni Association**

Funds discussed in the preceding sections of this unit were provided primarily by the Division of Research. In addition, a survey of deans and departments (46 responses received) revealed other sources of funds which were used to support research on the UND campus. These funds, approximately \$994,698, consisting of state allocations, donations, alumni funds, and revenues generated from ongoing operations, were provided directly by the departments and deans.

**Figure 3-23. Unrestricted Awards by University Unit:  
FY 2005**



### SECTION III. AWARDS FROM THE RD&C RESEARCH FUND

Research Development and Compliance (RD&C) encourages, promotes, and supports research and program development activities by awarding grants from the RD&C Research Fund. The administration of the University of North Dakota allocated \$114,433 to the RD&C Research Fund in Fiscal Year 2005, \$2,863 was carried forward from Fiscal Year 2004, and \$50,000 was provided by the Vice President for Research for Arts, Humanities and Social Sciences awards. Table 3-31 indicates the amount of support awarded from this fund during each fiscal year of the past decade. The amounts awarded do not always equal the amounts available because some of the money awarded during the fiscal year was not used for various reasons and, consequently, was available for reallocation later in the year or in the following year. Awards in Fiscal Year 2005 totaled \$168,935.

**Table 3-31. Awards from the RD&C Research Fund: FY 1994-FY 2005**

Fiscal Year	Amount
1995	110,070
1996	109,960
1997	97,970
1998	119,046
1999	121,415
2000	112,122
2001	114,250
2002	133,704
2003	138,852
2004	136,655
2005	168,935

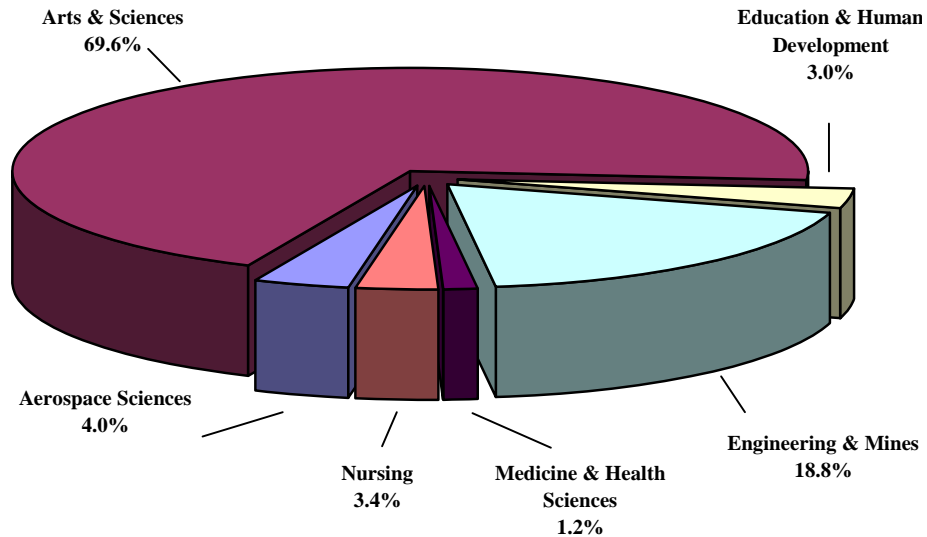
The awards made in Fiscal Year 2005 and in the previous two fiscal years are summarized by University unit in Table 3-32 and Figure 3-24. The awards were distributed among six organizational units in Fiscal Year 2005. Major variations may occur year-to-year due to faculty turnover, major awards requiring matching funds, and the necessity to provide start-up funds.

**Table 3-32. Awards from the RD&C Research Fund by University Unit: FY 2003-FY 2005**

Unit	FY 2003	FY 2004	FY 2005
College of Arts and Sciences	\$ 46,349	\$ 61,182	\$117,610
College of Business and Public Administration	2,122	0	0
College of Education and Human Development	10,000	8,510	5,000
College of Nursing	2,000	215	5,750
John D. Odegard School of Aerospace Sciences	22,650	26,070	6,750
Office of the President	6,623	237	0
Office of the Vice President for Academic Affairs and Provost	528	761	0
School of Engineering and Mines	43,010	37,685	31,750
School of Medicine and Health Sciences	5,570	1,995	2,075
<b>TOTAL AWARDS FROM THE RD&amp;C RESEARCH FUND</b>	<b>\$138,852</b>	<b>\$136,655</b>	<b>\$168,935</b>

Table 3-33 shows how these funds were utilized in Fiscal Year 2005 and the previous three fiscal years. Figure 3-25 depicts Fiscal Year 2005 awards by activity.

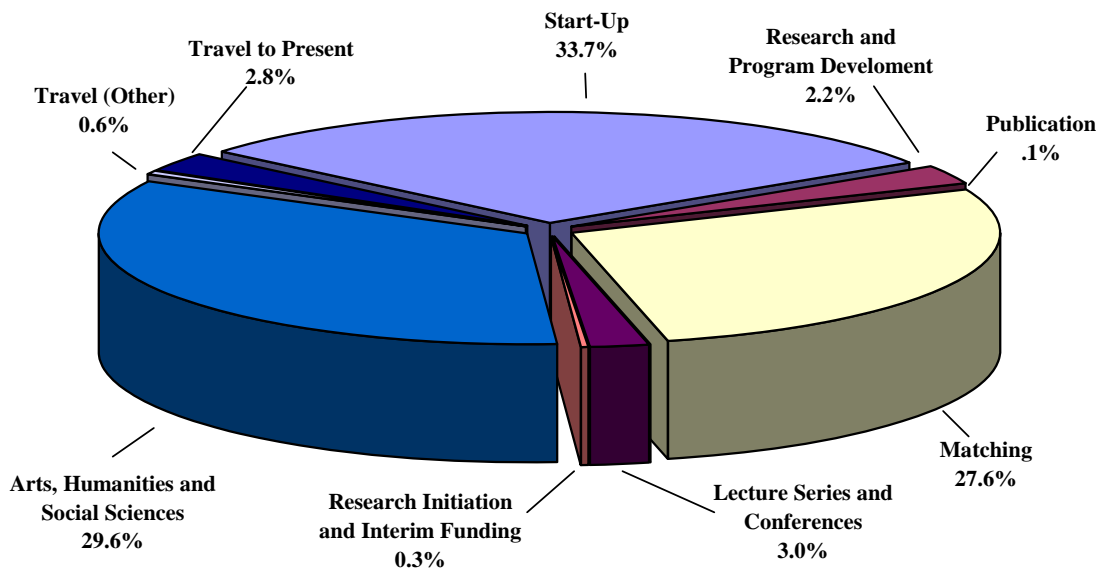
**Figure 3-24. Awards from the RD&C Research Fund by University Unit: FY 2005**



**Table 3-33. Awards from the RD&C Research Fund by Activity: FY 2002-FY 2005**

Use	FY 2002	FY 2003	FY 2004	FY 2005
Arts, Humanities and Social Sciences	\$ 0	\$ 0	\$ 0	\$ 49,997
Lecture Series and Conferences	0	5,500	7,450	5,000
Matching Awards	39,500	28,750	35,250	46,600
Publication Costs	0	817	0	250
Research and Program Development	14,380	23,039	29,027	3,750
Research Initiation and Interim Funding of Grants	17,300	0	0	533
Start-Up Funds for New Faculty	34,000	59,500	35,000	57,000
Travel—Other	10,877	7,305	10,079	1,075
Travel to Present Research Papers	17,647	13,941	19,849	4,730
<b>TOTALS</b>	<b>\$133,704</b>	<b>\$138,852</b>	<b>\$136,655</b>	<b>\$168,935</b>

**Figure 3-25. Awards from the RD&C Research Fund by Activity: FY 2005**



### A. Arts, Humanities and Social Sciences Awards

In Fiscal Year 2005 the Vice President for Research made \$50,000 available to fund creative activities in the Arts, Humanities and Social Sciences. Twenty-one Arts, Humanities and Social Sciences proposals were received, requesting a total of \$192,094.54. Awards totaling \$49,997 were made based on review by a committee composed of representatives of each of the disciplines from which proposals were received.

The awardees, their departments, their projects, and the amount awarded are indicated below.

Benoit, Virgil P.	Modern and Classical Languages and Literatures	Book Titled "The History of an American Airman in Occupied France"	\$ 4,100
Burin, Eric A.	History	(Untitled)	3,600
Dixon, Kathleen G.	English	History and Hyperreality on "Slavi's Show" of Bulgaria	4,000
Fink, Kim W.	Art	Print Project and Collaboration with the Center for Contemporary Printmaking and Kala Art Institute	4,900
Gallo, Sergio R.	Music	Three Compact Disc Recording	3,100
Hans, Birgit	Indian Studies	The Star Quilt in American Indian Communities on the Northern Plains	4,340
Hume, Wendelin M.	Criminal Justice	Women's Voices from the Red River Valley: On-Line Living History Museum	2,500
Meyer, Michael E.;	Criminal Justice	Comparison of South African Policing and American Criminal Justice Students on Attitudes toward Crime and Justice	2,330
Mayzer, Roni A.;			
Gottschalk, Martin	Philosophy and Religion	(Untitled)	4,780
Miller, Charles W.	Art	(Untitled)	4,000
Miller, Donald H.	Art	(Untitled)	4,998
Petros, Thomas V.	Psychology	(Untitled)	4,998
Reese, Ty M.	History	Humphrey Morice and the Gold Coast Slave Trade: An Attempt to Revise and Understand the Slave Trade's Consequences on Africa's Development	1,018
Romig, Kevin D.;	Geography;	Using GIS to Analyze and Predict Spaces of Methamphetamine Abuse in North Dakota	892
Mayzer, Roni A.	Criminal Justice		
Routon, Claudia J.	Modern and Classical Languages and Literatures	Contemporary Poetry in Spain and Portugal	3,403
Weatherly, Jeffrey N.;	Psychology	Effect of Intoxication on the Gambling Behavior of Native and Non-Native Americans	2,036
King, Alan R.;			
McDonald, J. Douglas			
<b>TOTAL ARTS, HUMANITIES AND SOCIAL SCIENCES AWARDS</b>			<b>\$ 49,997</b>

### B. Lecture Series and Conferences

In order to enhance the research environment on campus and to facilitate interdisciplinary research efforts and collaboration, funds are made available to partially support campus lecture series or conferences. The following lecture series and conference awards were made in Fiscal Year 2005:

Marasinghe, G. Kanishka	Physics	Funding for the Department of Physics Colloquia Series	\$ 1,500
Smoliakova, Irina P.	Chemistry	Partial Funding for the 2004-2005 Department of Chemistry Lecture Series	2,000
Weinstein, Jack R.	Philosophy and Religion	Partial Funding for the Department of Philosophy and Religion Colloquium: 2004-2005	1,500
<b>TOTAL LECTURE SERIES AND CONFERENCE AWARDS</b>			<b>\$ 5,000</b>

### C. Matching Awards

Faculty may submit proposals to external funding agencies which, if funded, will require matching funds or contributions by the University of \$5,000 or less. Requests for larger match requirements are made directly to the Vice President for Research. The RD&C Director may obligate matching monies in anticipation that the submitted grant proposal will be funded. If the project is not funded, the monies are released and returned to the RD&C Research Fund for redistribution. In other cases, RD&C provides partial support for research equipment if the department, college, or other administrative unit or program participates in cost-sharing. The following matching awards were made in Fiscal Year 2005:

Haertel, Patrick T.	Atmospheric Sciences	Final Payment for Matching Funds for EPSCoR Startup Award	\$ 1,750
Hartman, Joseph H.	Geology and Geological Engineering	Matching Funds to Purchase A Laptop Computer	1,000
Kolodka, Edward B.	Chemical Engineering	Matching Funds for a North Dakota EPSCoR Start-Up Proposal	5,000
Kulkarni, Manohar R.	Mechanical Engineering	Matching Start-Up Funds for the Chair of Mechanical Engineering (First Year)	5,000
Lindseth, Glenda N.	Nursing	Matching Funds for Grant Proposal Consultant	3,000
Mann, Michael D.; Salehfar, Hossein	Chemical Engineering; Electrical Engineering	Matching Funds for U.S. Department of Energy-EPSCoR Grant Proposal	5,000
Marasinghe, G. Kanishka	Physics	Matching Funds for a Research Experience for Undergraduates (REU) Proposal to be Submitted to the National Science Foundation (First Year)	2,500
Moreno, Juana	Physics	Matching Funds for Ralph E. Powe Award from Oak Ridge Associated Universities	5,000
Novikov, Alexei V.	Chemistry	Matching Funds for North Dakota EPSCoR Start-Up Award	5,000
Phillips, Rebecca L.	Upper Midwest Aerospace Consortium	Matching Funds for a U.S. Department of Agriculture 2004-2005 Renewal Award	5,000
Seames, Wayne S.	Chemical Engineering	Matching Funds for Proposal Submitted to the U.S. Department of Energy Titled "Mercury Oxidation via Catalytic Barrier Filters, Phase II"	5,000
Weinstein, Jack R.	Philosophy and Religion	Matching Funds for Proposal to be Submitted to the North Dakota Humanities Council	3,350
<b>TOTAL MATCHING AWARDS</b>			<b>\$ 46,600</b>

### D. Publication Awards

Because some professional journals require fees to publish articles, RD&C sometimes provides support for publication costs. One award was made for publication in Fiscal Year 2005:

Weaver-Hightower, Rebecca A.	English	Publication of a Book Titled "Empire Islands: Castaways, Cannibals, and Fantasies of Conquest in Postcolonial Island Narratives"	\$ 250
<b>TOTAL PUBLICATION AWARDS</b>			<b>\$ 250</b>

### E. Research and Program Development

The following awards were made in Fiscal Year 2005 for research or program development projects:

Doze, Van A.	Pharmacology, Physiology and Therapeutics	Partial Funding for a Vibrating Microtome to Be Used by Students in the NSF Research Experience for Undergraduates (REU) Program	\$ 1,000
Morris, Donna L.	Family and Community Nursing	Integrative Analysis of Menopause	2,000
Sheridan, William F.	Biology	Partial Funding to Update a Microscope	750
<b>TOTAL RESEARCH AND PROGRAM DEVELOPMENT AWARDS</b>			<b>\$ 3,750</b>

## **F. Research Initiation and Interim Funding of Grants**

On occasion, faculty who have externally funded research support find themselves between grants, in situations where a grant is insufficient to cover all costs of a project, or facing unexpected research expense. RD&C may provide supplemental support when grant budgets are reduced or are insufficient to cover the research costs. In some instances, RD&C provides interim support while investigators await decisions on their grant renewal requests. Awards are also made to explore the feasibility of a research plan or develop ideas preparatory to seeking external grants. One award was made in this category in Fiscal Year 2005:

King, Alan R.	Psychology	Preliminary Studies on Behavioral Science Research	\$ 533
<b>TOTAL RESEARCH INITIATION AND INTERIM FUNDING OF GRANTS AWARDS</b>			<b>\$ 533</b>

## **G. Start-Up Funds for New Faculty**

In order to assist new faculty, RD&C works with deans and department chairpersons to provide research funds for new faculty so they can establish their research programs and develop proposals for external support. Deans and department chairpersons usually participate in cost-sharing. The funds are often used to purchase start-up equipment, including personal computers and laboratory equipment. During Fiscal Year 2005, the following awards were made to new faculty:

Caraher, William R.	History	Start-Up Funds for New Faculty	\$ 2,000
Halbur, Duane A.	Counseling	Start-Up Funds for a New Faculty Member	5,000
Halcrow, Cheryl L.	Mathematics	Start-Up Funds for New Faculty	5,000
Lawson, Eric B.	Music	Start-Up Funds for New Faculty	5,000
Lim, Yeo Howe	Civil Engineering	Start-Up Funds for New Faculty	5,000
Mamaghani, Iraj H. P.	Civil Engineering	Start-Up Funds for New Faculty	5,000
Romig, Kevin D.	Geography	Start-Up Funds for New Faculty	5,000
Simmons, Rebecca A.	Biology	Start-Up Funds for Evolutionary Biology Faculty Position	5,000
Takahashi, Shuzo	Mathematics	Start-Up Funds for New Faculty	5,000
Tkach, Vasyl V.	Biology	Start-Up Funds for Disease Ecology Faculty Position in the Department of Biology	5,000
Vandeberg, Gregory S.	Geography	Start-Up Funds for New Faculty	5,000
Zhao, Xiaojun	Chemistry	Start-Up Funds for New Faculty	5,000
<b>TOTAL START-UP AWARDS FOR NEW FACULTY</b>			<b>\$ 57,000</b>

## **H. Travel (Other)**

In order to encourage faculty to submit proposals for external funding, RD&C provides travel funds to them for the purpose of visiting potential funding agencies to discuss research plans and gain information regarding preparing proposals. Visits to research laboratories and attendance at research workshops or symposia to learn new research skills/techniques and to gain information that will be helpful in developing proposals are also supported. The following travel awards were made in this category in Fiscal Year 2005:

Lindseth, Glenda N.	Nursing	Travel to Attend a Workshop for Applicants and Grantees of the "Extramural Research Facilities Construction Projects" Program	\$ 750
Sukalski, Katherine A.	Biochemistry and Molecular Biology	Travel to Attend the 11 <sup>th</sup> Annual Conference on Teaching Survival Skills and Ethics	325
<b>TOTAL AWARDS FOR TRAVEL (OTHER)</b>			<b>\$ 1,075</b>

**I. Travel to Present Research Papers**

To assist faculty in their professional development, RD&C provides financial support to attend meetings to present research papers. RD&C funds usually provide partial support of the travel expenses. These funds are generally awarded during the summer months when the Senate Scholarly Activities Committee (SSAC) does not meet or at those times when short timelines do not permit application to the SSAC. The following travel awards were made in Fiscal Year 2005:

Bandyopadhyay, Biswanath P.	Mechanical Engineering	Travel to Present a Paper at the Eighth International Conference on Manufacturing and Management	\$ 750
Fiordo, Richard A.	School of Communication	Travel to Present a Paper at the World Federation and Society for Adolescentology (WFSA)	500
Milavetz, Barry I.	Biochemistry and Molecular Biology	Travel to Present a Paper at the International DNA Tumor Virus Meeting	750
Porter, Kimberly K.	History	Travel to Present a Paper at the National Agricultural History Symposium	550
Thomasson, Kathryn A.	Chemistry	Travel to Present a Paper at the Gordon Conference	500
Tkach, Vasyly V.	Biology	Travel to Present a Paper and Chair a Session at a Jubilee Congress of the Polish Parasitological Society	1,200
York, Jonathan D.	History	Travel to Present a Paper at the Third Biennial Conference "War in Film, Television and History"	480
<b>TOTAL AWARDS FOR TRAVEL TO PRESENT RESEARCH PAPERS</b>			<b>\$ 4,730</b>
<b>TOTAL AWARDS FROM THE RD&amp;C RESEARCH FUND: 2004-2005</b>			<b>\$168,935</b>

**PART IV**

**Annual  
Report of  
Sponsored Program Awards**

**Fiscal Year 2005**

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**North Dakota Experimental  
Program to Stimulate Competitive  
Research (ND EPSCoR)**

Gary E. Johnson, Ph.D.  
Assistant Vice President for Research  
University of North Dakota  
Grand Forks, North Dakota 58202-7093

**University  
of  
North Dakota**

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## SECTION IV. NORTH DAKOTA EPSCOR

The North Dakota Experimental Program to Stimulate Competitive Research (ND EPSCoR) supports a three-fold mission:

- To be a driving force in building a strong research and development infrastructure throughout the State of North Dakota.
- To increase opportunities for North Dakota students and faculty to enhance their research capabilities.
- To develop strong linkages with business and industry in North Dakota.

Additional details can be found at <http://www.ndepscor.nodak.edu>.

ND EPSCoR uses state-appropriated funds primarily to leverage competitive research and development EPSCoR grants from federal agencies, in order to further develop and expand the state's Science & Technology (S&T) research infrastructure. The ability to build research infrastructure in the state is dependent upon the ability of ND EPSCoR to compete for the federal EPSCoR programs, and it is limited by the availability of state funds that can be used as a match towards these programs.

ND EPSCoR currently participates in EPSCoR programs affiliated with the National Science Foundation (NSF), the National Institutes of Health (NIH), the National Aeronautics and Space Administration (NASA), the Environmental Protection Agency (EPA), the Department of Energy (DOE), and the Department of Defense (DoD) to implement a multi-faceted infrastructure development plan that:

- Increases the number of scientists and engineers engaged in research of national significance, who will then be able to compete effectively for merit-based external grants and contracts.
- Improves the productivity of these researchers as determined by standard benchmarks (e.g., number of grants submitted to external agencies, papers published in refereed journals, and M.S. and Ph.D. graduates in S&T areas).
- Increases the number of students involved in Science and Technology (S&T) research, particularly members of underrepresented groups (e.g., low income, first-generation college, women, and American Indians).
- Fosters university-private sector partnerships and promotes the transfer of university research to the commercial sector.

North Dakota EPSCoR programs are open to all NDUS faculty and students. Many programs, including elements of the new NIH program, are aimed specifically at developing student-centered research opportunities at four-year comprehensive and liberal arts universities.

The National Science Foundation funded an EPSCoR Research Infrastructure Improvement (RII) grant in May 2002. This \$9.0 million grant, including \$6.0 million from the NSF and a required 50 percent match from the State of North Dakota for \$3.0 million, provided support for research infrastructure improvement, human resource development, and technology transfer over a three-year period, from May 1, 2002, through April 30, 2005. Additionally, the ND EPSCoR program applied for a follow-on

RII grant on July 19, 2004, which was awarded on April 13, 2005. This \$9.0 million award, also in the amount of \$6.0 million from the NSF and \$3.0 million appropriated by the state legislature as a cash match, will sustain the ND EPSCoR program from May 1, 2005, through April 30, 2008.

NSF EPSCoR RII funds are awarded to North Dakota principal investigators and students through a number of competitive processes that support New Faculty Startup awards, Graduate Research Assistantships, Doctoral Dissertation Assistantships, the acquisition of Major Research Instrumentation, Seed Grants, Advanced Undergraduate Research Awards, and awards to support the Technology Transfer of faculty and student inventions to the private sector.

The North Dakota State Legislature appropriated a total of \$5.09 million for “EPSCoR and EPSCoR-like activities” for use during the 2005-2007 biennium, effective July 1, 2005, through June 30, 2007. The required NSF EPSCoR RII program cash match is currently being drawn from these funds, while the remaining appropriation is being utilized for other ongoing federal agency EPSCoR-like programs and centers development initiatives at the University of North Dakota and North Dakota State University. Through North Dakota State Legislative appropriations, ND EPSCoR provides matching support to related federal opportunities, including the NASA EPSCoR program, the NIH Institutional Development Award (IDeA) program, and the DOE EPSCoR Implementation program. Support and facilitation of external reviews of DEPCoR and DOE EPSCoR Implementation preproposals submitted by North Dakota principal investigators are also provided by the ND EPSCoR program.

The goal of the National Science Foundation is to provide funding of emerging science and engineering education, research, and innovation in order to support:

- People
- Ideas
- Tools

Likewise, ND EPSCoR supported People, Ideas, and Tools within the State of North Dakota during Fiscal Year 2005 through the following programs:

- Statewide Research Initiatives (i.e., research centers development):
  - SUsustainable eNergy Research Infrastructure and Supporting Education (SUNRISE), based at UND
  - Spintronics, based at NDSU
- New Faculty Startup packages
- Acquisition of Major Research Instrumentation (i.e., tools or equipment), including High Performance Computing
- Human Resource Development of undergraduate researchers, two- and four-year institution faculty and students, and Tribal College faculty and students within the State of North Dakota, via the following three programs:
  - AURA – Advanced Undergraduate Research Awards

- FLARE – Faculty Laboratory And Research Experience
- NATURE – Nurturing American Tribal Undergraduate Research & Education
- Technology Transfer, via the following three programs:
  - STTAR – Students in Technology Transfer And Research
  - FITT – Faculty In Technology Transfer
  - RCMP – R&D Commercialization Market Partnerships
- Faculty Professional Development in Research:
  - ND EPSCoR Research Centers Development Leadership Seminar
  - NSF CAREER Grant Proposal Workshop
  - Travel funds (facilitated through Research Development & Compliance)
- Planning and Hosting Conferences:
  - ND EPSCoR State Conference, held in Grand Forks, ND on September 10, 2004
  - ND/SD EPSCoR 5<sup>th</sup> Biennial Joint Conference, held in Brookings, SD on September 8-9, 2005
- Opportunity Identification:
  - Hired The Implementation Group, Inc. (Washington, DC), to assist on opportunity identification and proposal review

The goals of ND EPSCoR are consistent with those of the NDUS Roundtable Report, and the multi-faceted infrastructure development plan outlined above collectively addresses the six cornerstones of the Roundtable. Specifically, with respect to Cornerstone 1: “The Economic Development Connection,” the Roundtable Report states “The research foundation on which entrepreneurial activity will necessarily be based must be expanded . . . To this end, the state should maximize the opportunities of EPSCoR funding available through Congress to assist in developing research and technology infrastructure . . .”

Major highlights of activities conducted during Fiscal Year 2005 are provided as follows:

**A. NSF EPSCoR Research Infrastructure Improvement (RII) Grant #EPS-0447679, 2005-2008**

ND EPSCoR was awarded the following grant from the National Science Foundation on April 13, 2005:

Agency:	National Science Foundation
Program:	Experimental Program to Stimulate Competitive Research (EPSCoR)
Solicitation:	NSF 04-564, Research Infrastructure Improvement
Project Title:	Advancing Science Excellence in North Dakota (ASEND)
Grant Number:	EPS-0447679

PI: Philip Boudjouk, North Dakota State University  
Co-PI: Peter Alfonso, University of North Dakota  
Submitted: July 19, 2004  
Awarded: April 13, 2005  
Amount Requested: \$9.0M NSF, \$4.5M ND Match (50% match required)  
Total Amount Awarded: \$6.0M NSF, \$3.0M ND Match  
Effective Dates: May 15, 2005, through April 30, 2008

The breakdown of total funding among the awardee institution, NDSU, and the subaward institutions, UND and Turtle Mountain Community College (TMCC), is given as follows:

NDSU Awardee Institution: \$2,842,500 NSF, \$1,500,000 ND Match  
UND Subaward: \$2,842,500 NSF, \$1,500,000 ND Match  
TMCC Subaward: \$315,000 NSF

This grant proposal was submitted with the assistance of The Implementation Group, Inc. (Washington, DC), which helped define several of the program offerings and assisted with constructing the narrative and budget sections of the project. A significant amount of effort was expended by the ND EPSCoR personnel throughout Fiscal Year 2005 in order to sustain program funding, according to the following timeline:

- Proposal Submission: July 19, 2004
- Request from NSF for a Response to Review Panel Questions: December 2, 2004
- Submission of Review Panel Response: January 6, 2005
- Submission of Revised Budget: March 8, 2005
- Award Letter: April 13, 2005

Two Statewide Research Initiatives (SRIs) described in the original proposal were selected by ND EPSCoR for support during this RII grant cycle. These two research clusters include:

- SUsustainable eNergy Research Infrastructure and Supporting Education (SUNRISE), based at the University of North Dakota and led by Dr. Mark Hoffmann (Chemistry) and Dr. Michael Mann (Chemical Engineering)
- Spintronics, based within the Center for Nanoscale Science & Engineering (CNSE) at North Dakota State University and led by Dr. Doug Schulz

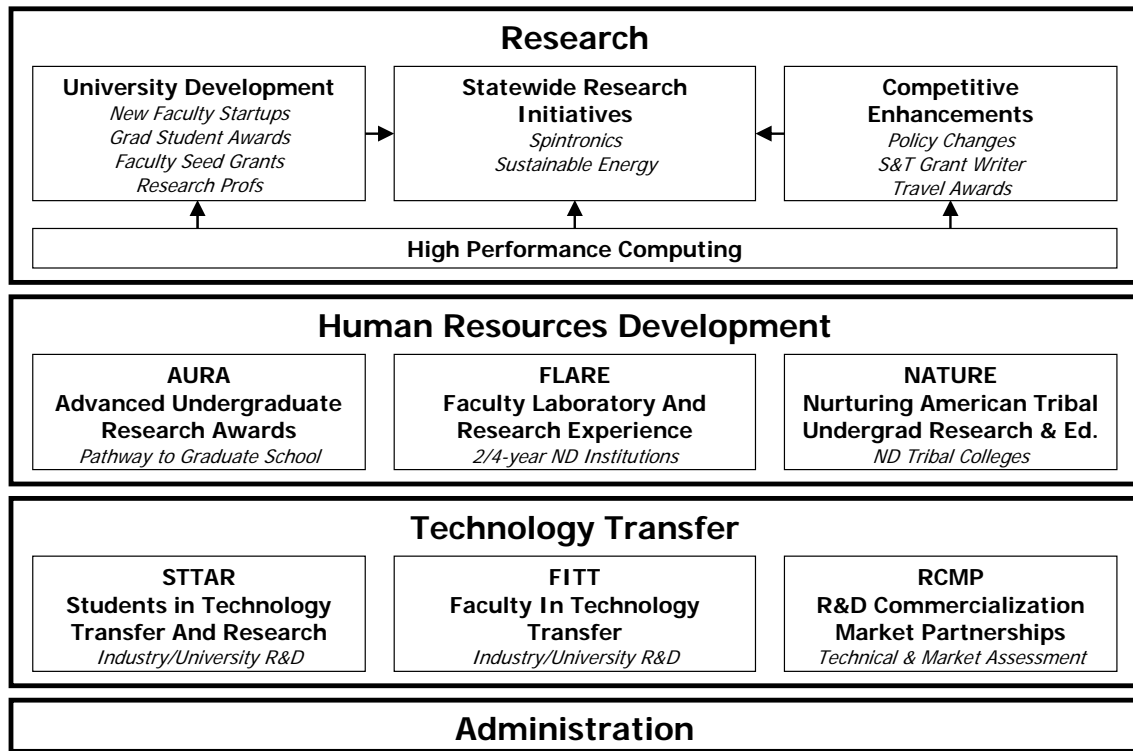
The SUNRISE initiative has representation from the Departments of Chemistry and Chemical Engineering at UND, and its affiliated researchers are investigating basic science problems related to renewable and sustainable energy, including clean coal technologies, the development of agriculture-based biofuels, and hydrogen fuel transport and energy generation. Almost \$1 million has been allocated for each Statewide Research Initiative (SRI) throughout the duration of the three-year grant period, representing the largest investment that ND EPSCoR has ever made in its RII research clusters. Two other research clusters that were included in the original RII proposal were eliminated from the project because of the NSF budget reduction. These include the Red River Neuroscience Initiative (RRNI), based

within the UND School of Medicine & Health Sciences and UND Biology, and Tissue Engineering, based within NDSU Mechanical Engineering.

Figure 4-1 is an overview of the ND EPSCoR Infrastructure Improvement Programs supported by NSF RII Grant #EPS-0447679.

Figure 4-1.

## ND EPSCoR Infrastructure Improvement Programs



To provide some insight into the budget allocations, the \$9.0 million total budget (\$6.0 million NSF and \$3.0 million ND Match) is divided equally between UND and NDSU, and it is allocated approximately as follows:

- Research (71%)
- Human Resources Development (10%)
- Technology Transfer (7%)
- Administration (12%)

## **B. North Dakota State Legislature Senate Appropriations Committee Hearing**

Peter Alfonso and Philip Boudjouk provided testimony regarding the North Dakota EPSCoR program before the North Dakota State Legislature Senate Appropriations Committee on January 17, 2005, at the State Capitol Building in Bismarck. The North Dakota State Board of Higher Education made a formal request for \$5.09 million to support EPSCoR and EPSCoR-like activities during the 2005-2007 biennium, and this testimony before the Senate Appropriations Committee served to stress the need for continuing the state's partnership with ND EPSCoR. David R. Givers and Richard R. Schultz also attended the Senate Appropriations Committee Hearing to meet with the senators. The full request was granted, effective July 1, 2005, through June 30, 2007. The majority of these funds are utilized as a required match for the NSF EPSCoR RII grant as well as the other federal agency EPSCoR and EPSCoR-like programs. Additionally, some of the state funding will be utilized to develop research centers at UND and NDSU that are aligned with North Dakota Department of Commerce economic development objectives.

## **C. ND EPSCoR Co-Project Director Responsibilities and Assistant Vice President for Research Search**

The Co-Project Director of the ND EPSCoR program on the UND campus was responsible for the following duties during Fiscal Year 2005:

- Assisting the Vice President for Research with providing strategic program direction.
- Administering all aspects of the program at the University of North Dakota, including management of the ND EPSCoR staff.
- Working closely with David R. Givers, Interim Co-Project Director of the ND EPSCoR program at North Dakota State University, to manage the contiguous 2002-2005 and 2005-2008 NSF EPSCoR RII awards.
- Assisting with the preparation, review, and distribution of RII program Requests for Proposals (RFPs) to faculty.
- Serving on the NASA EPSCoR Advisory Committee.
- Serving as a liaison between the university's ND EPSCoR program and federal/state agencies.

Richard R. Schultz, Associate Professor of Electrical Engineering, served as the ND EPSCoR Co-Project Director during Fiscal Year 2005, from July 1, 2004, through June 30, 2005. He served in this role as a 0.5 FTE employee of the UND Division of Research, along with a 0.5 FTE academic appointment within the School of Engineering and Mines. Dr. Schultz was recruited to replace the retiring Chair of Electrical Engineering at the University of North Dakota, effective August 1, 2005.

An internal search commenced for a full-time Assistant Vice President for Research, who will be required to dedicate 0.5 FTE to the position of ND EPSCoR Co-Project Director and 0.5 FTE to special projects for the Division of Research. Dr. Peter Alfonso, Vice President for Research, appointed Dr. Gary E. Johnson as Assistant Vice President for Research after an internal search was conducted by a university-wide committee chaired by Dr. Barry Milavetz, Associate Vice President for Research. Dr. Johnson assumed the role of ND EPSCoR Co-Project Director at the University of North Dakota on August 1, 2005.

**D. Consulting Firm Assists with Opportunity Identification and Proposal Development**

The Implementation Group (TIG), Inc., headquartered in Washington, DC, and led by Dr. Joseph Danek, was hired by ND EPSCoR to help craft the 2005-2008 NSF EPSCoR RII grant. Dr. Danek, in collaboration with his associate Dr. Jim Hoehn, has been instrumental in leading program development and assessment within a number of key EPSCoR states. Dr. Danek served as the first Program Officer within the EPSCoR program at the National Science Foundation in the 1980s, and Dr. Hoehn served in this same capacity at the NSF more recently before moving into private consulting.

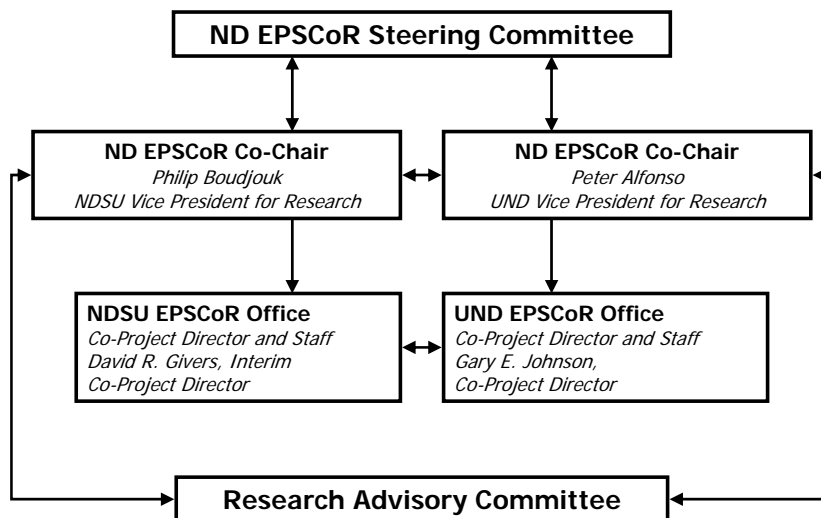
ND EPSCoR continued their consulting contract with TIG throughout FY 2005 and beyond to December 31, 2005. Some of this firm’s accomplishments and future initiatives include the following:

- Assistance with 2005-2008 NSF EPSCoR RII proposal (due July 19, 2004) and review panel response (due January 6, 2005).
- Facilitation of Fiscal Year 2005 DEPSCoR preproposal external reviews, September 2004.
- Development and delivery of the ND EPSCoR Research Centers Development Leadership Seminar, April 14-15, 2005.
- Facilitation of Fiscal Year 2006 DOE EPSCoR Implementation proposal external review and refinement, July 2005.
- Opportunity identification for research themes/clusters with potential for sustainable research center development on the UND and NDSU campuses, Summer 2005.

**E. Status on Reorganization of ND EPSCoR**

Figure 4-2 shows the organizational chart for ND EPSCoR in Fiscal Year 2006.

**Figure 4-2. North Dakota EPSCoR Organization**



The ND EPSCoR Executive Leadership Team consists of Drs. Alfonso and Boudjouk, Vice Presidents for Research at UND and NDSU, respectively. These individuals provide strategic direction for ND EPSCoR, which includes grant opportunity identification and assessment, program and centers development, and networking with stakeholders inside the State of North Dakota and throughout the nation. The entire ND EPSCoR Management Team, led by Drs. Alfonso and Boudjouk, also consists of the Co-Project Directors on both campuses, Dr. Gary E. Johnson at UND and David R. Givers at NDSU. They are responsible for the day-to-day management and operations of ND EPSCoR programs. Specifically, they manage the administrative staff at the UND and NDSU EPSCoR offices; prepare annual and interim reports; develop and distribute Requests for Proposals to PIs for both ND EPSCoR and mainstream programs; line up internal and external reviewers and panels where appropriate; manage program budgets in collaboration with the campus Grants & Contracts officers; assess the performance of individual programs, the Statewide Research Initiatives, and the overall ND EPSCoR program; and interface directly with the National Science Foundation. These four members of the Management Team discuss EPSCoR-related issues that arise on a regular basis (at least twice a month) through conference calls and face-to-face meetings in Hillsboro, North Dakota, which is located approximately half-way between Fargo and Grand Forks.

As shown in the organizational chart, there are two external advisory boards. First, the ND EPSCoR Steering Committee helps develop strategy for R&D and science outreach directions that align with state goals. The ND EPSCoR Executive Leadership Team members (Alfonso and Boudjouk) Co-Chair the Steering Committee, which meets three to four times per year. The Steering Committee is comprised of the Governor of the State of North Dakota, four members of the North Dakota State Legislature, the Chancellor of the North Dakota University System, one representative from the state's five Tribal Colleges, and two representatives from the private sector. Second, the Research Advisory Committee (still under formation) consists of faculty on both campuses with expertise in state science and technology interests. The Research Advisory Committee has the responsibility of identifying federal, state, and private sector opportunities that are appropriate for ND EPSCoR to pursue, as well as defining long-term S&T strategies for the research universities. ND EPSCoR also plans on adding several nationally-recognized experts to the Research Advisory Committee.

## **F. Proposal Reviews**

ND EPSCoR facilitated a number of its own internal program competitions during Fiscal Year 2005. The essential philosophy is that any grant competition involving a research cluster or a faculty principal investigator is dedicated to an external (i.e., outside the State of North Dakota) review board, while competitions involving undergraduate and student investigators are reviewed internally by North Dakota administrators and faculty. The following reviews were conducted during Fiscal Year 2005, listing the eligible applicants and the group that participated in the actual proposal review:

- Fiscal Year 2005 DEPSCoR preproposals – Participants: ND faculty PIs from UND and NDSU; External Review: Conducted in conjunction with NDSU by a panel convened by The Implementation Group, September 2004.
- New Faculty Startup – Participants: UND and NDSU department chairs seeking startup packages for fall 2005 open positions; External Review: Conducted in conjunction with NDSU by four out-of-state reviewers who traveled to Fargo, ND, to interview the department chairs, December 2-3, 2004.
- Advanced Undergraduate Research Awards – Participants: Undergraduate students who wish to work with UND faculty investigators and have completed at least four semesters of higher education at North Dakota University System institutions, with at least four semesters remaining

before graduation; Internal Review: Conducted separately from NDSU by Deans of UND Science & Technology colleges, March 24, 2005.

- Doctoral Dissertation Awards – Participants: Doctoral students at UND who have advanced to candidacy and their graduate advisors; Internal Review: Conducted separately from NDSU by a panel of UND faculty and administrators (including the Graduate Dean and the Associate Vice President for Research), June 21, 2005.
- Fiscal Year 2006 DOE EPSCoR Implementation preproposal – Participant: UND research cluster seeking an award to conduct sustainable energy research activities; External Review: Conducted in conjunction with NDSU by a panel convened by The Implementation Group, July 2005.

### **G. Major Research Instrumentation Acquisition**

Through extensive dialogue with science and engineering faculty, the Office of the Vice President for Research has purchased major research instrumentation and related support equipment for a number of emerging interdisciplinary and multidisciplinary research areas at the University of North Dakota. These equipment acquisitions were made possible through ND EPSCoR Strategic Planning funds, used to target key research initiatives in the life sciences, renewable and sustainable energy, and high performance computing. A total of almost \$700,000 in instrumentation and support equipment was purchased for the campus between June 2004 and May 2005.

Several emerging interdisciplinary and multidisciplinary research centers received key pieces of instrumentation over the past year:

- A Linux Beowulf high performance computing cluster, to establish the university-wide Computational Research Center (CRC) for large-scale numerical simulations. The CRC is managed by the Office of the Vice President for Research, with equipment housed by Information Technology Systems and Services.
- A gene microarray and a phosphorimager for the Genomics & Proteomics Research Center, a new university-wide core facility established and managed by the Office of the Vice President for Research. This center's research instrumentation is currently housed in the School of Medicine & Health Sciences.
- Bench instrumentation for the Red River Neuroscience Initiative (RRNI), a collaborative effort in fundamental cell biology and neural signaling research between the Department of Biology within the College of Arts & Sciences and the Department of Pharmacology, Physiology & Therapeutics within the School of Medicine & Health Sciences.
- Capital equipment to initiate research activities within the SUsustainable eNergy Research Infrastructure and Supporting Education (SUNRISE), a new ND EPSCoR Statewide Research Initiative supported by the 2005-2008 NSF EPSCoR Research Infrastructure Improvement award to the State of North Dakota. The SUNRISE initiative has representation from the Departments of Chemistry and Chemical Engineering, and its affiliated researchers are investigating basic science problems related to renewable and sustainable energy, including clean coal technologies, the development of agriculture-based biofuels, and hydrogen fuel transport and energy generation.

The main goal is to leverage ND EPSCoR Strategic Planning funds in order to develop sustainable research centers in these key research areas over time, through funding from federal, state, and private sector partners.

#### **H. Planning and Hosting Research Conferences**

As an outreach service to the State of North Dakota and its research community, ND EPSCoR planned and/or hosted the following meetings:

- Planned and hosted the ND EPSCoR State Conference on September 10, 2004, in Grand Forks, ND at the Ramada Inn (attendance approximately 150).
- Helped plan and served as a public sponsor for the R&D Showcase IV, held in the Grand Forks, ND Alerus Center on April 22, 2005 (attendance approximately 300).
- Assisted in planning the SD/ND EPSCoR 5<sup>th</sup> Biennial Joint Conference, held in the Brookings, SD Swiftel Center on September 8-9, 2005 (attendance approximately 200).

#### **I. Planning and Hosting Faculty Professional Development Workshops for Faculty**

As a professional development service for North Dakota principal investigators, ND EPSCoR helped plan and host the following events:

- NSF CAREER Grant Proposal Workshop, held in the UND School of Medicine & Health Sciences on April 8, 2005 (panel consisted of previous and current NSF CAREER awardees at the University of North Dakota; attended by approximately 50 junior faculty and their chairs).
- ND EPSCoR Research Centers Development Leadership Seminar, held on the NDSU campus on April 14, 2005, with an identical workshop held on the UND campus on April 15, 2005 (workshop agenda and speakers organized by The Implementation Group; attendance at UND approximately 60 faculty and professional research staff).

#### **J. ND EPSCoR Representation at National Meetings**

Members of the ND EPSCoR Management Team and staff attended a number of national meetings during FY2005:

- DOE EPSCoR PD Meeting at the NSF headquarters in Arlington, VA, on October 7, 2004 (attended by Richard R. Schultz and David R. Givers).
- NSF EPSCoR PA/PD Meeting at the NSF headquarters in Arlington, VA, on October 8, 2004 (attended by Peter Alfonso, Philip Boudjouk, Richard R. Schultz, David R. Givers, Cathy Lerud, and Elizabeth Jung).
- EPSCoR/IDeA Coalition Meeting at the Four Points Sheraton in Washington, DC, on March 8-9, 2005 (attended by Peter Alfonso, Philip Boudjouk, Richard R. Schultz, and David R. Givers).
- NSF EPSCoR PA/PD Meeting at the NSF headquarters in Arlington, VA, on May 2-3, 2005 (attended by Richard R. Schultz, David R. Givers, Cathy Lerud, and Elizabeth Jung).

## **K. Planning Activities**

The ND EPSCoR Co-Project Director at the University of North Dakota was involved in the following research centers-related planning activities:

- Compiled information for the University of North Dakota “Centers of Excellence for Economic Development” report to North Dakota University System Chancellor Robert Potts, submitted by Pres. Charles E. Kupchella on September 1, 2004.
- Assisted on campus strategic planning for the UND Division of Research during AY 2004-2005, primarily on interdisciplinary and multidisciplinary research.

Furthermore, the ND EPSCoR Co-Project Director attended the following one-day conference with Leon Osborne (Atmospheric Sciences), Mark Hoffmann (Chemistry), and Ronald Marsh (Computer Science), to learn about future cyberinfrastructure opportunities within the NSF, including supercomputing and networking:

- Centers Development Initiative/Computer & Information Systems & Engineering (CDI/CISE) Meeting on Large-Scale Computing, held in Washington, DC, on November 15, 2004.

This led to the submission of an NSF Major Research Instrumentation grant proposal and the submission of a federal initiative proposal in January 2005 to purchase a large-scale high performance computer and hire multi-processor software development and system administration staff. Unfortunately, both proposals were denied.

## **L. Outreach Activities**

Outreach activities sponsored by ND EPSCoR and attended by the Co-Project Director include the following:

- Negotiated the Nurturing American Tribal Undergraduate Research & Education (NATURE) program activities and budget with Dr. Carol Davis, Acting President of Turtle Mountain Community College, on July 6, 2004 (Richard R. Schultz and David R. Givers).
- Visited with all New Faculty Startup award winners from FY 2004 and FY 2005, throughout November/December 2004 and January 2005 (Richard R. Schultz).
- Attended the final presentations of the NATURE High School Summer Camp at Turtle Mountain Community College on July 7-8, 2005 (Richard R. Schultz, Mark Hoffmann, and William H. Semke).
- Argonne National Laboratory representatives visit with North Dakota researchers on July 25, 2005 (NDSU) and July 26, 2005 (UND). Argonne is interested in increasing its outreach to EPSCoR states and developing partnership through student internships and research collaborations.
- Division of Research delegation visit with Dr. Carol Davis at Turtle Mountain Community College on August 2, 2005 (Peter Alfonso, Barry Milavetz, Gary E. Johnson, and Richard R. Schultz).

ND EPSCoR awards at the University of North Dakota for FY2005 are itemized within the following sections:

### 1. Infrastructure Improvement Programs

Infrastructure Improvement Programs support New Faculty Startup Awards, Doctoral Dissertation Awards, Graduate Student Assistantship Awards, and Permanent Equipment Acquisitions. Listed below are the awards for this reporting period:

**Table 4-1. ND EPSCoR New Faculty Startup Awards: FY2005**

Principal Investigator	Department	Title	Amount
Kulkarni, Manohar R.	Mechanical Engineering	New Faculty Startup	\$ 40,000
Liu, Rugao	Anatomy and Cell Biology	New Faculty Startup	90,000
Novikov, Alexei V.	Chemistry	New Faculty Startup	75,000
Rygalov, Vadim	Space Studies	New Faculty Startup	50,000
Simmons, Rebecca A.	Biology	New Faculty Startup	25,000
Zhao, Julia X.	Chemistry	New Faculty Startup	50,000
<b>TOTAL NORTH DAKOTA EPSCoR NEW FACULTY STARTUP AWARDS</b>			<b>\$330,000</b>

**Table 4-2. ND EPSCoR Doctoral Dissertation Awards: FY2005**

Student	Adviser	Department	Amount
Karki, Shankar Kumar	Mann, Michael D.	Chemical Engineering	\$ 34,886
Korch, Shaleen B.	Hill, Thomas M.	Microbiology and Immunology	34,886
Waingeh, Victor Foin	Thomasson, Kathryn A.	Chemistry	34,886
Zhao, Yongxin	Mann, Michael D.	Chemical Engineering	34,886
<b>TOTAL NORTH DAKOTA EPSCoR DOCTORAL DISSERTATION AWARDS</b>			<b>\$139,544</b>

**Table 4-3. North Dakota EPSCoR Graduate Student Research Assistantship Awards: FY2005**

Student	Adviser	Department	Amount
Anderson, Jason	Reza, Hassan	Computer Science	\$31,037
Peterson, Jay	Marsh, Ronald A.	Computer Science	31,037
<b>TOTAL NORTH DAKOTA EPSCoR GRADUATE ASSISTANTSHIP AWARDS</b>			<b>\$62,074</b>

**Table 4-4. ND EPSCoR Permanent Equipment Acquisition from Strategic Planning Funds: FY2005**

Department	Amount
Biocomplexity Cluster, Biology	\$ 5,835
Biology	51,000
Chemistry	4,975
Computational Research Center (HPC), Office of the Vice President for Research	39,567
Infectious Diseases; Genomics & Proteomics , Neuroscience; Microbiology and Immunology	217,855
Red River Neuroscience Initiative (RRNI), Pharmacology, Physiology, and Therapeutics; Biology	199,976
School of Engineering and Mines , Chemical Engineering; Electrical Engineering	67,839
Sustainable eNergy Research Infrastructure and Supporting Education (SUNRISE), Chemistry; Chemical Engineering	100,000
<b>TOTAL ND EPSCoR EQUIPMENT AWARDS</b>	<b>\$687,047</b>

## 2. Science Outreach And Recruitment (SOAR)

Three Science Outreach And Recruitment (SOAR) programs, namely Advanced Undergraduate Research Awards (AURA), Science Bound, and Faculty Laboratory and Research Experience (FLARE), were supported in Fiscal Year 2005. Ten AURA undergraduates received support from the ND EPSCoR Program to conduct research for an eight- to ten-week period during Fiscal Year 2005. The student participants in AURA and their faculty mentors are listed in Table 4-5.

**Table 4-5. North Dakota EPSCoR AURA Program Awards: FY2005**

Student	Mentor	Department	Amount
Carlson, Jennifer	Grove, Bryon D.	Anatomy and Cell Biology	\$ 3,580
Guido, Jenny	Pyle, Sally J.	Biology	3,580
Guido, Joseph	Mann, Michael D.	Chemical Engineering	3,580
Herner, Stephanie	Rieke, Garl K.	Anatomy and Cell Biology	3,580
Hubbard, Nicole	Sweitzer, Rick A.	Biology	3,580
Jorissen, Heather	Porter, James E.	Pharmacology, Physiology and Therapeutics	3,580
Larson, Chadwick	Picklo, Matthew J.	Pharmacology, Physiology and Therapeutics	3,580
Moen, Amanda	Pyle, Sally J.	Biology	3,580
Swearson, William	Young, Timothy R.	Physics	3,580
Woell, Catherine	Meberg, Peter J.	Biology	3,580
<b>TOTAL ND EPSCoR AURA PROGRAM AWARDS</b>			<b>\$35,800</b>

Entering freshman with a strong interest in science, engineering, and mathematics can qualify for the EPSCoR Science Bound program, which provides support for academic year and summer research activities. Students who maintain a 3.0 GPA and demonstrate progress in their research are eligible for a second-year award. The 14 participants in Fiscal Year 2005 and their faculty mentors are listed in Table 4-6.

**Table 4-6. North Dakota EPSCoR Science Bound Awards: FY2005**

Student	Mentor	Department	Amount
Aberle, Sara	Lindseth, Paul D.	Aviation	\$ 1,697
Blanchard, Miran	Atkinson, Michael M.	Anatomy and Cell Biology	3,580
Bush, Sara	Thomasson, Kathryn A.	Chemistry	1,697
Fettig, Megan	Wu, Min M.	Biochemistry and Immunology	1,697
Gruman, Elizabeth	Sheridan, William F.	Biology	1,980
Hofland, Erica	Meberg, Peter J.	Biology	1,980
Johnson, Diana	Vaughan, Roxanne A.	Biochemistry and Molecular Biology	1,980
Keller, Brittany	Lindseth, Glenda N.	Nursing	1,980
King, Jacob	Doze, Van A.	Pharmacology, Physiology, and Therapeutics	5,560
Lilke, Nathan	Cavalli, Matthew N.	Mechanical Engineering	1,697
Lund, Michael	Grove, Bryon D.	Anatomy and Cell Biology	1,980
Nurnberger, Jeri	Weatherly, Jeffrey N.	Psychology	1,980
Rafferty, Iris	Dunlevy, Jane R.	Anatomy and Cell Biology	1,980
Westby, Joanna	Lindseth, Glenda N.	Nursing	3,580
<b>TOTAL ND EPSCoR SCIENCE BOUND AWARDS</b>			<b>\$33,368</b>

Faculty at North Dakota's two- and four-year institutions participate in ND EPSCoR's Faculty Laboratory and Research Experience (FLARE) program, which provides support for summer research in collaboration with a principal investigator at one of the two research universities. There were no awards made in Fiscal Year 2005.

### 3. NASA EPSCoR Grants

As a result of a successful proposal to the National Aeronautics and Space Administration (NASA) EPSCoR Program, funds were available to support projects related to areas of interest to NASA. Seed, Collaborative Student Support, and Travel grants were awarded to faculty responding to a request for proposals distributed by the NASA EPSCoR Coordinator, Shanaka L. de Silva (Space Studies). The UND faculty receiving awards from this program are listed in Table 4-7.

**Table 4-7. North Dakota NASA EPSCoR Awards: FY2005**

Principal Investigator	Department	Title	Amount
Ames, Forrest E.	Mechanical Engineering	Experimental Investigation of Pin Fin Array Fluid Dynamics	\$ 2,000
De Leon, Pablo G.	Space Studies	Design & Development of New Generation Space Suits	27,457
Kucera, Paul A.	Atmospheric Sciences	Implementation of Snowfall Distribution Model for Hydrologic Studies in the Northern Plains	2,183
Kucera, Paul A.	Atmospheric Sciences	Student Research Award: Evaluation of Convection Observed in South Florida during the NASA CRYSTAL-FACE Field Campaign	3,833
Semke, William H.	Mechanical Engineering	International Modal Analysis Conference Travel Award Proposal	2,292
<b>TOTAL NORTH DAKOTA NASA EPSCoR AWARDS</b>			<b>\$37,765</b>

### 4. NIH Biomedical Research Infrastructure Network (INBRE) Grants

North Dakota INBRE's purpose is to build a biomedical research network and to engage baccalaureate and tribal colleges with the state's research-intensive universities. Networking and human resource development are the watchwords for this collaborative effort between the two North Dakota research universities, four baccalaureate institutions in the North Dakota University System, and the five tribal community colleges. Table 4-8 lists the ND EPSCoR award to INBRE to provide electronic journals, databases, and software that will support the research efforts at ND INBRE institutions.

**Table 4-8. North Dakota NIH Biomedical Research Infrastructure Network (INBRE) Award: FY2005**

Principal Investigator	Department	Title	Amount
Rieke, Judith L.	Library of Health Sciences	Biomedical Electronic Resources	\$20,000

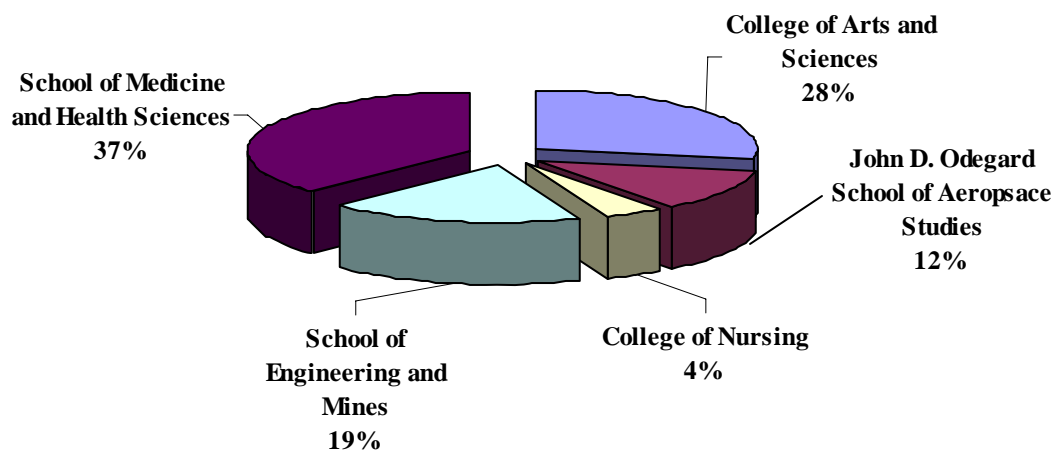
### 5. North Dakota EPSCoR Awards by University Unit

Table 4-9 and Figure 4-3 show the distribution of North Dakota EPSCoR awards by University unit.

**Table 4-9. EPSCoR Awards by University Unit: FY 2005**

Unit	Amount
College of Arts and Sciences	\$ 297,834
John D. Odegard School of Aerospace Studies	125,801
College of Nursing	44,594
School of Engineering and Mines	197,316
School of Medicine and Health Sciences	400,257
<b>TOTALS</b>	<b>\$1,065,802</b>

**Figure 4-3. EPSCoR Awards by University  
Unit: FY 2005**



**PART V**

**Annual  
Report of  
Sponsored Program Awards  
Fiscal Year 2005**

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**Technology Transfer  
and Commercialization**

James K. Petell, Ph.D.  
Director/Registered Patent Agent  
University of North Dakota  
Grand Forks, North Dakota 58202-7134

**University  
of  
North Dakota**

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## SECTION V. TECHNOLOGY TRANSFER AND COMMERCIALIZATION

During the past year the office of Technology Transfer and Commercialization (TTC) has established the infrastructure for the protection of intellectual property discovered at the University of North Dakota. The infrastructure has included building a secure room for its intellectual property and legal documents, acquiring a patent tracking and document system (CPi), contracting with a prior art search firm (Nerac), and building databases for legal document tracking. TTC has secured access to a room designed to house legal and United State Patent and Trademark Office (USPTO) file wrappers and invention disclosure documents.

Other significant infrastructure changes have included the modification of the UND Intellectual Property Policy and the incorporation of a process for the review and filing of intellectual property documents. To date, over 70 documents have been reviewed by TTC in conjunction with the Grants and Contracts Office and University General Counsel as needed. The TTC Officer, Jim Petell, served as an *ex-officio* member of the Senate Intellectual Property Subcommittee and worked with the committee to draft a new Intellectual Property Policy for inventions discovered and patented at UND that has been passed by the University Senate and signed by the President. The IP Patent Policy raised the net cumulative royalty payment to inventors from 30 percent to a sliding 40 percent to 50 percent scale to encourage invention protection.

In its first year, TTC has been quite active in pursuing intellectual property protection. A patent protection process was developed as part of the UND IP Policy which included establishing an Invention Disclosure Committee (IDC) that reviews and provides its recommendation to the Vice President for Research (VPR), Dr. Peter Alfonso. Based on the recommendation of the IDC, the VPR may authorize the filing of the patent application. The IDC consists of two members each from the College of Arts & Sciences (Drs. Evgenii Kozliak, Jeff Vaughan), School of Engineering & Mines (Drs. Wayne Seames, Saleh Faruque), and School of Medicine & Health Sciences (Drs. Eric Murphy, Matt Nilles). One committee member (Dr. Ron Marsh) is from the John D. Odegard School of Aerospace Sciences.

To make the filing of patent applications user-friendly, a one page process from the invention disclosure through commercialization was designed for inventors. In order to facilitate dissemination of Intellectual Property Policy and basic information, over 15 presentations were given to faculty, students and administrators by Dr. Petell, a USPTO registered patent agent. During the past year, a total of 18 invention disclosures were filed, up from 2 disclosures the prior year, as well as 2 trademarks and 2 copyrights disclosures. Of those disclosed, five inventions disclosures and two copyrights were not advanced to the IDC committee. The IDC committee reviewed 9 invention disclosures and approved the filing of 8 disclosures. Nine patent applications were filed with USPTO, which included 7 provisional applications, a Patent Cooperation Treaty (PCT) application and a Request Continuing Examination (RCE) application. Pending applications were approximately a three-fold increase from the previous year. One U.S. patent was issued compared to none in the prior year.

Other activities have included the hiring of a full-time staff member, Michelle Meyer, to assist in legal document preparation and review and patent submission and tracking. TTC has initiated the licensing and commercialization of its Intellectual Property with several companies, one of which has resulted in a letter of understanding between UND and an external company to form a joint biotechnology company that is focused on developing therapeutic antibodies and vaccines against emerging infectious diseases for agricultural and pharmaceutical applications. Partial funding was provided for Phase 1 research and matching funding was requested from the North Dakota Agriculture Products Utilization Commission (APUC). Additional resources are being sought for a licensing associate/marketing position to advance commercialization of UND intellectual property.

**Table 5-1. Technology Transfer and Commercialization Disclosures and Patent Applications:  
FY 2005**

	Intellectual Properties Disclosures <sup>1</sup>	Filed Applications <sup>2</sup>	Pending Applications <sup>2</sup>	Patents Issued <sup>3</sup>
2000-2003	1	3	5	0
2004-2005	22	9	14	1

<sup>1</sup>Includes trademark and copyright disclosures.

<sup>2</sup>Includes only single pending application per subject matter.

<sup>3</sup>US Issued patents only.

**Figure 5-1. Technology Transfer and Commercialization Disclosure and Patent Applications:  
2000-2003 and 2004-2005**

