



We are proud of ECU's growing research community and seek to promote research and creative activity through faculty development, community partnerships, and opportunistic as well as strategic investment that will serve as a springboard to progressive growth.

Deirdre Mageean, Vice Chancellor
Research & Graduate Studies

East Carolina University

Division of Research and Graduate Studies

Annual Report September 1, 2007

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1 Introduction



Deirdre Mageean
Vice Chancellor, Research
and Graduate Studies

We are happy to report that the Division of Research and Graduate Studies (DRGS) is healthy and growing. As planned, we are continuing to make opportunistic and strategic investments that will serve as a catalyst for growth in research, graduate education and scholarly activities. Our division strategic plan outlines a bold road map for that investment, in state, federal, corporate, and foundation funding to ensure that we are positioned to take advantage of new opportunities as they arise.

Again this year, DRGS has invested more than a million dollars in start-up funding enabling new faculty to build research programs that can successfully compete for federal funding. This investment is already paying dividends with a 100% increase in federal awards resulting from these internal grants. Additionally, our research expenditures continue to increase. Last month alone, our faculty was awarded \$7.4 million, over twice the amount for the same period last year (\$3.1M). In addition, ECU was one of only two universities to receive a single grant of \$1 million or larger from the Golden LEAF Foundation during the 2006-07 funding cycle as well as two grants from the Kate B. Reynolds Charitable Trust totaling

more than a half a million dollars. These awards exceeded the funding awarded to any other university in North Carolina.

We celebrate these achievements and resulting increase in research funding not because we pursue national rankings or classification, but because they support our mission as an engaged institution – where we translate and apply the fruits of our labor, where research enhances the learning experiences of our graduate and undergraduate students, and where we are simultaneously proud of our basic research but intolerant of any academic insecurity or snobbery which relegates applied research to second best.

In the area of graduate education, we have identified and allocated new funding for graduate assistantships and established mechanisms for steady increases in the future. We are also working towards the establishment of endowed graduate fellowships and remain dedicated to improving health insurance and improved stipends for our students.

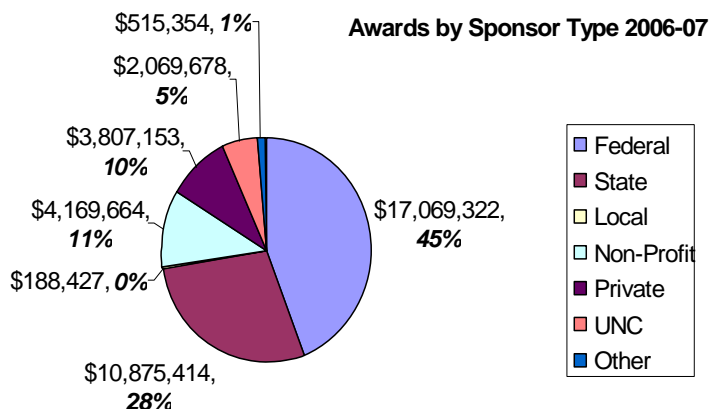
As universities are increasingly called upon to address societal problems especially within the region, communities, and constituencies they serve, ECU continues to highlight its mission as an engaged and responsive university. We do it in a myriad of ways but most importantly by creating, imparting and applying knowledge. In the newly configured Regional Development Institute, recently renamed the Office of Economic Development, we have a catalyst for university activities related to economic development as well as a conduit through which the community can access this ever-growing and increasingly complex institution. The creation of “faculty fellowships”, enabling selected faculty to devote a semester or year to work in the area of economic and community development, is one innovative way that DRGS intends to vigorously pursue this goal.

We are proud to celebrate and support the great achievements of our faculty and students because they support our mission as an engaged institution – where we translate and apply the results of our research and where research enhances the learning experiences of our graduate and undergraduate students.

2 Year in Review

2.1 Research funding highlights

For the fiscal year ending June 2007, all major measures of external funding submissions and awards increased compared to last year. The university-wide number of proposals submitted was 620, an increase of more than 17 percent over the previous year's reported number of 529. A total of 434 Principal Investigators at ECU won awards for 388 submissions totaling \$38,559,802. Some notable achievements include the following reporting units:



- Brody School of Medicine — \$19,908,357 (up 14 percent)
- College of Education — \$4,480,571 (up 55 percent)
- Coastal Studies Institute — \$530,909 (up 348 percent)
- College of Technology and Computer Science — \$2,388,468 (up 569 percent)
- Vice Chancellor's Office, Research & Graduate Studies — \$1,321,112 (up 4481 percent)

2.1.1 Summary of submissions and awards by source of funds

Many of our numbers continue to trend upward, even in a less-than-optimum federal funding climate. Overall sponsored funding from federal sources increased from \$13.9 million to \$17.1 million, an increase of nearly 23%, whereas state funding declined 11%. This suggests that our faculty members are shifting support for their projects from state sources which typically do not allow the university to recover indirect costs to federal sources which do allow indirect cost recovery.

Five year trends show strong growth, 16% overall, and evidence that ECU's strategy of investing in research productive faculty is paying off. Of significant note is a 64% increase in federal funding for the five year period ending June 2007, or ca. 13% per year.

Table 1: ECU external grant and contract awards by source of funds

| | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 |
|------------|--------------|--------------|--------------|--------------|--------------|
| Federal | \$10,379,399 | \$12,860,940 | \$12,159,215 | \$13,899,497 | \$17,069,322 |
| State | \$9,510,940 | \$11,461,813 | \$11,624,963 | \$12,108,231 | \$10,875,414 |
| Local | \$873,460 | \$1,245,329 | \$1,280,501 | \$154,115 | \$188,427 |
| Non-Profit | \$7,266,427 | \$6,244,686 | \$2,943,403 | \$4,005,119 | \$4,169,664 |
| Private | \$3,885,587 | \$5,503,765 | \$3,268,819 | \$5,271,571 | \$3,807,153 |
| UNC | \$1,352,760 | \$1,360,743 | \$1,078,321 | \$2,038,637 | \$2,069,678 |
| Other | \$174,830 | \$279,877 | \$721,141 | \$496,773 | \$515,354 |

Table 2: ECU external grant and contract submissions and awards by division for fiscal year 2006-2007

| <i>Submissions</i> | <i>Number</i> | <i>Amount</i> | <i>Awards</i> | <i>Number</i> | <i>Amount</i> |
|------------------------------------|---------------|---------------|------------------|---------------|---------------|
| Academic Affairs | 273 | \$82,827,984 | Academic Affairs | 155 | \$14,244,621 |
| Health Sciences | 307 | \$94,431,705 | Health Sciences | 193 | \$21,237,051 |
| RGS | 42 | \$7,448,636 | RGS | 39 | \$3,024,561 |
| Student Life | 1 | 53569 | | | |
| Multi-Disciplinary Projects | | | | | |
| Academic Affairs | 57 | \$27,347,691 | Academic Affairs | 32 | \$4,373,726 |
| Health Sciences | 37 | \$18,202,426 | Health Sciences | 9 | \$1,172,048 |
| RGS | 10 | \$4,820,992 | RGS | 6 | \$1,390,790 |
| Non-Traditional Projects | | | | | |
| Academic Affairs | 1 | \$50,000 | Academic Affairs | 1 | \$50,000 |

2.1.2 Selected examples of external grant and contract awards

It is worth noting that many funding agencies make multi-year grant and contract awards. The amounts listed above in Table 2 show the amount available for expenditure in the current fiscal year only and do not reflect amounts available in the future from multi-year awards. Selected examples are cited below to show the financial impact of multi-year awards and to give a sense of the breadth of research, teaching and service projects being carried out by our faculty at East Carolina University.

- 1) "Biomechanics and Robotics Explorations for IT Literacy Skills in Rural Schools", Paul Kauffman (Technology Systems), Gail Ratcliff (Mathematics), Dana Espinosa (Exercise and Sports Medicine), Cathy Hall (Psychology). National Science Foundation. \$1,354,847. Award to fund programs for training teachers in rural schools to incorporate IT concepts into the classroom and improve IT literacy in rural students with limited access to computers outside of school.
- 2) "Mitochondrial Bioenergetics and Etiology of Insulin Resistance", National Institute of Health. P. Darrell Neuffer and G. Lynis Dohm, College of Health and Human Performance and Brody School of Medicine. \$1,187,980. Funds are provided to study mitochondrial dysfunction and development of insulin resistance leading to increased obesity and diabetes in humans with high fat diets.
- 3) "The Effects of Biodiversity on Pond Communities: Incorporating Natural Patterns of Diversity Loss", National Science Foundation. David R. Chalcraft, Department of Biology, Harriot College of Arts and Sciences, \$625,000. The award provides funding to understand how species diversity affects the structure and stability in pond ecosystems, especially with respect to aquatic predatory insects on herbivores.
- 4) NSF Teacher Enhancement proposal; "TechMath: Real World Math, Technology, and Business Connections," Ernest Marshburn, \$1,195,048 award to provide support for science, technology, engineering, and mathematics education in rural eastern North Carolina.
- 5) "Definability and Decidability over Algebraic Extensions of Product Formula Fields", National Science Foundation, Alexandra Shlapentokh, \$116,108. The award provides funds to increase the understanding of decidability and definability in the language of rings in number theory and algebraic geometry and logic.

- 6) "East Carolina University Ryan White Title IV Funding for FY06", Thomas Kerkering, Internal Medicine, Brody School of Medicine. Health Resources and Services Administration-U.S. Dept. of Health & Human Services. \$1,098,755. Award for providing medical support for patients with HIV/AIDS in 13-county area of Eastern NC.
- 7) Renaissance Computing Institute; "Regional Engagement Center for Coastal Systems Informatics and Modeling," Ernest Marshburn, \$1,700,000. Award to bring a new modeling and visualization center to ECU.
- 8) "Impaired Muscle Acyl-CoA Synthetase-Lipid Oxidation in African American Women", National Institute of Health. Ronald N. Cortright, Exercise and Sport Science, College of Health and Human Performance. \$1,046,855. Award provides funding to determine the cellular mechanisms which pre-dispose African American women to obesity and diabetes.
- 9) "Cytokine Dysregulation in GM-CSF Autoimmunity", National Institute of Health. Mary Jane Thomassen, Brody School of Medicine, \$1,140,000. Funds provided to study autoimmune disorders in lung disease with the aim of investigating new and improved therapies.
- 10) "ECU SPED T2T: East Carolina University Special Education Transition to Teaching", *US Department of Education*. Sandra Warren, Jennifer Williams, Dan Boudah, Dept. of Curriculum and Instruction, College of Education. \$1,757,617. Award provides funding for creating programs to train and retain qualified special educators in helping children with severe disabilities in schools with a high demand for such.
- 11) "Mid-Currituck Sound Bridge Studies", Ernest Marshburn, NC Dept of Transportation and NC Turnpike Authority. \$1,718,000. Award to research the near term and long term performance of the proposed Mid Currituck Sound Bridge project and related traffic system by developing and analyzing environmental and economic impacts of the proposed bridge including discrete event traffic models.
- 12) "Acquisition of a High-Performance Computing Cluster Environment in Support of Scientific and Engineering Applications", National Science Foundation. Andrew L. Sargent, Jason Bond, Paul Fletcher, Gerald Micklow, and Ernest Marshburn. \$400,000. The award provides funds to acquire high performance cluster at ECU in support of on-going research projects in Chemistry, Physics, Biology, and Engineering.

2.2 Research expenditure highlights

For the fiscal year ending June 2007, ECU's expenditures increased to \$31.4 million from \$29.0 million in the 2005-2006 fiscal year. Typically, expenditures lag awards by 9 to 12 months. During the five year period ending in June 2007, ECU's expenditure of funds for research, teaching and service from external grants and contracts increased 25.6%. Most significantly, expenditures for research increased 46.5% during the same five year period. The percentage of funds awarded for research increased from 50% in FY 2002-2003 to 58% in FY 2006-2007, indicating an increased level of research productivity and scholarship. College leaders included the Brody School of Medicine, Harriot College of Arts & Sciences, the College of Education, and the College of Health and human performance (\$15.6, \$3.95, \$2.61, and \$2.03 million in expenditures, respectively, FY 2006-2007). Some of the largest gains this year were realized in

the Harriot College of Arts and Sciences (\$750k, 23% increase over last year) and in Health and Human Performance (\$710k, 54% increase over last year)

Table 3: Expenditure of funds from external grants and contracts for research, teaching and service.

| <i>Purpose</i> | <i>FY 2002-2003</i> | <i>FY 2003-2004</i> | <i>FY 2004-2005</i> | <i>FY 2005-2006</i> | <i>FY 2006-2007</i> |
|--------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Research | \$ 12,401,331 | \$ 13,709,157 | \$ 15,850,787 | \$ 16,224,435 | \$ 18,167,039 |
| Teaching, outreach & service | \$ 12,604,974 | \$ 11,792,008 | \$ 12,777,007 | \$ 12,780,309 | \$ 13,212,923 |
| Total expenditures | \$ 25,006,305 | \$ 25,501,165 | \$ 28,627,794 | \$ 29,004,744 | \$ 31,379,962 |
| % research | 50% | 54% | 55% | 56% | 58% |
| Indirect costs recovered | \$ 2,477,858 | \$ 2,512,961 | \$ 2,863,897 | \$ 3,117,422 | \$ 3,179,492 |
| Rate of indirect cost recovery | 9.9% | 9.9% | 10.0% | 10.7% | 10.1% |

** rate of indirect cost recovery expressed as a percentage of total expenditures*

2.2.1 Indirect cost recoveries

The indirect cost of performing research, teaching, service and outreach projects funded by grants and contracts from external agencies includes costs like heat, light, accounting and other support functions and personnel. Funding agencies, especially federal funding agencies, allow indirect costs for support of the university's externally funded activities. ECU's federal negotiated rate is 42.5% of modified total direct costs, excluding equipment. These funds are used to support the salaries of personnel in the Division of Research and Graduate Studies and are also used to provide seed funds to support new research initiatives.

While the dollar value of indirect costs recovered has increased proportionally with expenditures throughout the last five year period, ECU's *rate* of indirect cost recovery has remained at the same relatively low level for the period ending in June 2007. As ECU's level of research funding increases compared to funding for teaching, service and outreach, we expect the rate of indirect cost recovery to increase. Often, state agencies and non-profit organizations that support teaching, service and outreach activities do not allow recovery of indirect costs. As more faculty members shift their focus to federal grant applications, it is expected that the rate of indirect cost recovery will increase.

3 Strategic initiatives

During this past year, the Division of Research and Graduate Studies drafted its new strategic plan. This bold plan recognizes how research is transforming the world's economy through the generation and application of knowledge. In order to help eastern NC to participate actively in this transformation, ECU has set a course to double its research enterprise to \$80 million in external awards by 2012, creating a stimulating environment for research, innovation, and community engagement. Doubling of ECU's external funding over the next five years will require growth of about 15% per year through 2012. In order to achieve this level of growth it will be necessary to:

- 1) Significantly increase the number of externally funded faculty members (Section 3.1)
- 2) Increase space available for research (Section 3.2)
- 3) Increase graduate enrollment, especially in research intensive and Ph.D. and programs (Section 3.3)
- 4) Improve ECU's research administration infrastructure (Section 3.4)

In the remainder of this report, we outline the steps taken to implement this bold plan and highlight some early successes.

3.1 Significantly increase the number of externally funded faculty members

The prestige of a university is built upon the quality of its graduates, its outstanding scholarship, creative activity and research productivity, as well as the outreach services and economic development that it generates. High quality scholarship and research requires dedicated, passionate faculty members. If East Carolina University is to continue to enhance its prestige and serve the needs of eastern North Carolina, it must increase the amount of external funds to support the research and scholarly activities of its faculty and students. This is being accomplished in three ways.

- 1) Recruit new faculty members with a high potential for research and scholarly productivity by offering competitive research start-up packages
- 2) Enable existing faculty to improve their chances for external funding by providing research development awards from institutional funds
- 3) Provide research mentoring and training activities for faculty

3.1.1 Research startup packages

In many disciplines, recruiting faculty members with substantial research potential is a highly competitive endeavor. Often times, an adequate start-up package, especially in technical fields, can make a significant difference when recruiting faculty with outstanding research potential. For this reason, the Division of Research and Graduate Studies oversees a pool of institutional funds to help Department Chairs and Deans assemble competitive faculty start-up packages. Start-up packages provide funds for laboratory equipment, supplies, and other research needs over a period of one to three years that enable faculty to establish vigorous, productive externally funded research programs. These funds represent a significant investment in the future research productivity of East Carolina University; therefore, deans and department chairpersons are asked to set appropriate performance benchmarks during employment negotiations with candidates. As part of this process, the division assesses unit and college research productivity over a period of several years, and future start-up investments will depend on success in meeting appropriate benchmarks.

Research startup fund investments:

- A commitment of \$1.72 million in startup funds was made to 36 new tenured and tenure track faculty recruits for the 2007 – 2008 academic year
- The total commitment over three years to the 2007-2008 cohort of new faculty was \$3.56 million
- Since the program's inception in the 2005-2006 academic year, a total commitment of \$7.11 million in startup funds has been made to 94 new faculty members

Investment returns: Of the 451 new tenured and tenure track faculty members hired during the five year period ending June 2007:

- 143 new faculty (31.7%) submitted 487 grant proposals as Principal Investigators seeking \$212 million in external funding
- 77 new faculty members were awarded a total of 187 grant proposals worth \$22.7 million in external funds as Principal Investigators
- The success rate for proposals submitted by new faculty members was 38.4% during a time of decreasing federal support for research and increasing competitiveness

The success of the new faculty members hired during this period clearly supports the notion that awarding of startup funds is a worthwhile investment in the future productivity of ECU's faculty.

3.1.2 Research development awards

In order to assist and promote the success of currently employed faculty, the Division holds an annual competition for research development awards to provide seed funds for faculty members to develop preliminary data for major research proposals to external sponsors. The goal of this program is to increase both the amount of externally supported research at ECU and the number of faculty members with external support. Proposals for research in basic, applied, and professional fields are considered, and submission of a proposal to an external sponsor is required within 18 months after the start of the award. Funds may be used for small equipment, research expenses, and salaries for students, etc. The maximum amount that can be requested for proposals without support for doctoral students is \$20,000. An additional amount of up to \$15,000 can be requested to support a doctoral student's participation on the proposed project.

Table 4: Research Development Awards

| <i>Fiscal year</i> | <i>No. faculty</i> | <i>Amt invested</i> |
|--------------------|--------------------|---------------------|
| 2005-2006 | 23 | \$551,373 |
| 2006-2007 | 22 | \$609,342 |
| 2007-2008 | 21 | \$485,208 |

Research development award investments:

- A total of \$1.16 million in Research Development Awards to 45 faculty members was made since the program's inception in fiscal year 2005-2006
- A total of \$485,208 has been awarded to 21 faculty in the current fiscal year cycle

Investment returns: For the 2005-2006 cohort of 23 faculty receiving awards, a longitudinal study was conducted for the four year period ending July 2007 comparing their external grant productivity for a two year period before the award and a two year period after the award.

- A total of \$2.57 million in new funds were awarded to the 2005-06 cohort of 23 faculty for the two year period ending July 2007 compared \$1.29 million in previous two years, representing an increase in new funds of \$1.28 million (99%)
- The two-year return on investment (new funds) for 2005-06 cohort of 23 faculty was 232%, (\$1.28M increase in new awards / \$551k investment)
- 87 proposals (a 28% increase) were submitted by the 2005-06 cohort of 23 faculty for the two year period ending July 2007 compared to the previous two years
- 28 new proposals were funded (a 27% increase) for the two year period ending July 2007 compared to the previous two years

Another mechanism to promote faculty research programs is the long standing Faculty Senate Research & Creative Activity Award program. For over twenty five years, this program has successfully promoted research by providing operating expenses and summer stipend support for smaller but meritorious faculty research and creative activity projects. For the FY07-08, 13 meritorious proposals were awarded totaling \$234,258.

Table 5: Faculty Senate Research & Creative Activity Awards

| <i>Fiscal year</i> | <i>No. faculty</i> | <i>Amt invested</i> |
|--------------------|--------------------|---------------------|
| 2005-2006 | 30 | \$434,884 |
| 2006-2007 | NA | NA |
| 2007-2008 | 13 | \$234,258 |

3.1.3 Research development services

The Division of Research and Graduate Studies works collaboratively with the 9 schools and colleges at ECU to provide training and mentoring services to faculty who seek to improve their success in seeking external funding. Some examples of faculty mentoring and training services provided by the Division of Research and Graduate Studies include:

- Hosted six major training events and workshops, including presentations on “12-Keys to Successful Grant writing” and “Proposal Planning and Writing”
- Led the development of relationships between ECU faculty and federal, state, and private organizations to increase opportunities for research, training, service and outreach
- Provided direct consulting support for numerous teams of faculty preparing large externally funded grant proposals
- Hosted 24 faculty visits to federal agency program officers in Washington DC and 21 faculty visits to a National Institute of Health regional meeting on grant funding
- Initiated the Science at Starlight Seminar Series and conducted three off-campus workshops to promote collaboration between University researchers and scientists at private regional companies.
- Provided internal & external proposal review services for about a dozen faculty members
- The Kate B. Reynolds Charitable Trust publicly praised ECU for its internal proposal review system which helped make its applications to the Trust more competitive than those of other universities and encouraged other institutions to adopt similar internal systems.
- Developed new faculty research orientation materials and conducted new faculty orientation workshop

3.2 Increase available space for research

As research activities increase and ECU begins to realize its ambitious plan for growth, significantly more specialized space will be needed for faculty members, graduate students, and undergraduate students engaged in research. Space for research, especially wet labs, tends to be the most costly kind of space the university creates at \$250/ft² to \$350/ft². Before ECU can make successful arguments for increased research space, it is imperative that we first assess the amount of research space we currently have and develop metrics to assess its utilization.

In collaboration with Mr. Bruce Flye, Director of Campus Space Planning, the Division of Research and Graduate Studies has begun to develop a planning standard for research space that will support both space allocation and long-term capital planning in a manner that addresses university-wide missions and priorities in a comprehensive manner. The space planning standard for research space will take the form:

Space Required = Space Allowance X Use Indicator

where the use indicator provides some measure of the productivity, such as expenditures (\$) per net assignable square foot (NASF).

Research space planning:

- Draft spreadsheets for assessing the utilization of university research space at the Brody School of Medicine and on the east campus have been prepared
- Discussions about the research space needs for metabolic disorders, obesity, diabetes, and bioenergetics have been initiated
- Budget discussions for up-fitting of empty research space in the Science and Technology Building have been initiated (8000 ft² x \$280 / ft² = \$2.2 million)
- A draft plan for the renovation of research space in the Brody School of Medicine has been created (labs are 30 years old)

3.3 Graduate program development

The Graduate School at ECU supports a broad range of post-baccalaureate programs that serve the needs of students, the region, the nation and the world in an increasingly competitive global environment. The purpose of the Graduate School is to sustain excellence in ECU's graduate programs, ensure high quality educational experiences and professional development for all of its graduate students, facilitate strategic development of graduate programs in selected areas of strength, and compliment the University's research, outreach and undergraduate teaching programs.

Accomplishments:

- In 2006-2007, approximately 5000 graduate applications were processed yielding a fall 2007 class of over 6000 graduate students, the largest in ECU history
- An increase of \$500,000 in assistantship support for graduate students now makes the total support to students in excess of \$5,000,000. This figure will increase annually in proportion to state allocated faculty salary raises
- The Graduate Task Force Report and the Yardley Report contain strategic recommendations that will undergo campus scrutiny and lead to policy recommendations this year
- A plan to provide health insurance to all full-time, fully-supported Ph.D. students is under development to improve the recruitment and retention of high-quality students
- A variety of long-standing policy gaps are being addressed by the Graduate School Administrative Board
- A major revision of the outdated 1991 Graduate Thesis/Dissertation handbook was completed and is an important step towards electronic submission and publication of theses and dissertations
- Six assistantships and tuition remissions (\$150,000) were given to the Ph.D. programs in the Brody School of Medicine to stimulate research programs in the biomedical basic sciences
- A reenergized Graduate Student Council was developed with new leadership and a full agenda of action items

3.4 Infrastructure improvements

As our faculty seek to increase their level of scholarship, research, creative activities, outreach and service activities, increasing demands will be placed on the administrative systems that

support their efforts, from developing budgets and submitting proposals, to spending funds and hiring personnel, to complying with increasing federal regulations, and to applying the results of their work to benefit eastern North Carolina and beyond.

Each of the core administrative units in the Division of Research and Graduate Studies have responded with unit strategic plans that are closely aligned with the Division's overall plans. These are described, along with some early successes, in Section 3.4.

3.4.1 Office of Sponsored Programs

The Mission of the Office of Sponsored Programs is to encourage and promote the teaching, research, service, and creative endeavors of the university by providing timely, professional assistance to faculty and staff to acquire external funding from governmental and private organizations, and to ensure compliance with federal, state and institutional requirements.

During the 2006-2007 fiscal year the Office of Sponsored Programs:

- Processed 620 proposals for contracts, grants, and cooperative agreements submitted by university faculty, an increase of 17 percent over the previous fiscal year
- Provided training to faculty and staff through four video conferences, six training sessions, and two major workshops on grant writing and proposal planning.
- Began a review of policies and procedures for the submission and award of sponsored programs with the objective of clarifying institutional policies and streamlining internal processes
- Created two new positions to facilitate the processing and submission of proposals and the negotiation of contract terms and conditions for clinical trial agreements sponsored by pharmaceutical companies

3.4.2 Office of Grants and Contracts

The Office of Grants and Contracts (OGC) combines the dual functions of providing post-grant award services to Principal Investigators and academic units while ensuring adequate institutional oversight and monitoring for compliance with University and sponsoring agency fiscal regulations. This year OGC activities were primarily devoted to developing positions and recruiting staff for the post-award functions. OGC staff have been assessing the policy and training needs of the campus while developing new procedures to streamline processes for researchers. OGC staff are participating in a number of committees and working groups to improve the research administration functions. As a result of this assessment activity, it is anticipated that OGC will provide a number of new training programs, distribute more training materials, and propose a number of administrative policies and initiatives in 2008.

This year OGC successfully negotiated a new federal facilities and administrative costs (*indirect cost*) rate agreement. The agreement reached is very favorable to ECU in that it:

- Provides phased-in rate increases over the next few years
- Establishes a new rate category (Other Sponsored Activities)
- Stabilizes the rate and negotiation process by establishing rates through 2011

The longer than normal effective period will reduce ECU costs for rate development and negotiation, will allow the division time to review methodologies for capturing and allocating costs before the next submission, and will enhance our ability to include anticipated increased research costs in our next negotiation to maximize rate recovery.

3.4.3 Office of Technology Transfer

ECU's technology transfer activities have gained national recognition for metrics associated with identification / disclosure of inventions and filing of patent applications, but commercialization success has been less than optimal. More is necessary to benefit the region and the public at large than simply succeeding in identifying campus innovations. The economy of North Carolina and particularly eastern North Carolina demands greater attention to economic benefits of technology transfer. Accordingly, OTT has adopted a new strategic direction that 1) expands traditional technology transfer activities to support development of partnerships promoting innovation, 2) improves deal flow, and 3) promotes regional economic opportunities. OTT will accomplish this by 1) expanding its core technology skills and resources, 2) expanding technology transfer services in support of institutional education, research and economic development activities, 3) facilitating public / private partnerships, and 4) fostering a culture of innovation. Accomplishments for 2006-2007 focused on internal activities to shore up policies and practices for responsible management of ECU's intellectual assets. In addition OTT entered into three license agreements and concluded negotiation of the Currituck Sound Bridge agreement with the North Carolina Department of Transportation. The vision for 2007 – 2008 is far more bold and will build upon the direction charted in the new strategic plan. The result will be improved partnerships throughout the institution to accelerate innovation toward commercialization, more license agreements, and a 10% increase in license income.

4 Economic development and community engagement

East Carolina University's Office of Regional Development Services has recently been renamed the Office of Economic Development (OED) to:

- Clearly communicate the University's vision, commitment, and strategies for economic growth and improved quality of life to external stakeholders, partners, and the legislature
- Identify the unit as a "front door" and "single-point-of-contact" to facilitate and coordinate access to and engagement of University resources
- Promote and strengthen a campus-wide fabric of outreach, engagement, and related scholarship
- Brand ECU as North Carolina's most innovative and responsive economic development partner
- Enhance ECU's competitiveness for appropriations, contracts, and grants within the UNC System, North Carolina, and beyond

The Office of Economic Development has been a primary gateway through which the University's considerable outreach, applied research, and workforce development resources are connected with industry, government, and communities to foster economic growth and improve the quality of life throughout eastern North Carolina and beyond. To achieve these objectives, OED is responsible for building and supporting collaborative programs among all colleges and units on campus, with other University of North Carolina system institutions, as well as other key partners. In the future, OED seeks to significantly increase the provision of strategic planning, grant writing, technical assistance, marketing and other assistance in direct partnership with community citizens, leaders, and elected officials.

The activities of ECU's OED reach across all colleges and are very diversified in campus-wide and statewide partnerships. Broadly engaged in this work, faculty serve the North Carolina

public and, in return, learn about new domains of instruction, service, and research that contribute to the health and welfare of the people of the state. OED is home to ECU's Capstone Studio, Center for Survey research, ECU Outreach Network (ECU-ON), the Entrepreneurial Initiative, and the Small Business and Technology Development Center, as well as a catalyst for University-wide extension-related activities and initiatives in all colleges.

OED's leadership and activities seek to implement the following core strategies:

- Implement economic development strategies that target ECU's research, education, and outreach enterprises on high-priority needs
- Catalyze higher-skilled, higher-wage jobs and new investments via targeted business recruitment and innovation-driven job creation and retention
- Lead collaborative efforts to create sustainable, inclusive models for regional prosperity...nurturing one North Carolina
- Foster significant advances in K+ education to drive student achievement and produce a local, globally-competitive workforce
- Partner with communities to build their leadership capacity, physical infrastructure, cultural vitality, environmental sustainability, and health and welfare thereby improving the quality of life for all citizens

4.1 OED 2006-07 Accomplishments by Department

I. Regional Development Institute

- Secured grants totaling \$121,833.00
- Played a leading role in implementing projects in Martin and Dare Counties; STEP Grant – Swan Quarter, Plymouth, Columbia, Grifton; Ayden (strategic plan), Roper (survey design project)
- Collaborated with SBTDC on Martin County retirement feasibility study

II. Survey Center

- Secured grants totaling \$245,460
- Played a leading role in implementing NC-STEP Projects (Columbia, Grifton) and a supporting role in Swan Quarter and Plymouth
- Provided non-contractual services to more than 10 community and organization-based projects

III. Entrepreneurial initiative

- Investors' meetings and conferences – 19 meetings of ENC-IB; 2 companies received investor ENC-Investor Network; estimated total investment worth \$688,000
- INNOV8R Series - Raised \$8,500 in sponsorship; organized 3 lecture series on intellectual property, market research and assessment and financing alternatives
- Supervised Graduate interns - supervised 8 College of Business graduate interns; developed booklets for training interns and for administration of Innov8r series, and collected information on clients

IV. ECU-outreach

- Supervised 6 Public Administration, 5 English major interns
- Assisted communities to secure grants of \$10,000 (St. Paul's Food Bank and CSS Neuse State Historic sites); and submitted several proposals worth \$307,053 on behalf of community agencies

V. SBTDC

- Clients - 382 clients counseled; 4,122 counseling hours; Client Financing – Debt & Equity - \$5,207,500; 85 Jobs Created; 37 Jobs Retained; READE program has received \$4M in loan repayments, which is over 90% of the goal set by the Department of Commerce in 2000
- Training - 41 training events, 722 attendees, 1,448 Training Hours
- Management Education Services – Facilitated 2 strategic planning and 2 leadership development programs
- Projects – Supervised MBA student interns; served on ECU Travel and Tourism Planning Conference Committee; worked with City of Greenville on developing grant proposals; with Martin County on attracting retirees; with the NC Department of Commerce regional office in attracting major employers and collaborated with college of Business faculty on research on successful entrepreneur

Looking forward, the new Associate Vice Chancellor for Economic Development is working to develop a full complement of professional staff, build critical mass and achieve early successes within the five core strategies noted above, enhance awareness of ECU's economic development contributions and strengthen this brand, engage more faculty (and students) in economic and community development activities via a new faculty fellows program, and increase the University's innovation-fueled economic development impacts including opportunities for an ECU Millennial Campus.

5 Division Centers & Institutes

5.1 North Carolina Agromedicine Institute (NCAI)

The UNC North Carolina Agromedicine Institute was organized to address the health needs of rural populations working in agriculture and living in rural counties. The Agriculture Economic Sector includes men, women and children who gain their livelihood through working in farming, forestry, fisheries, primary food and fiber processing and primary food and fiber marketing (farm to market sales). Currently agricultural exports for North Carolina exceed 2 billion dollars and the state ranks 9th in agricultural exports for the nation. North Carolina ranks first in the production of sweet potatoes, piglets, and tobacco, is the second leading producer of hogs and pigs, cucumbers, turkeys and Christmas trees, and is third in the nation for total farm income, poultry and egg production, and trout fisheries. North Carolina is a leading producer of fresh fruits and vegetables, cotton, soybeans, pickles, and forestry products. Most of North Carolina's produce is labor intensive requiring a large number of workers. In 2005, over 90 percent of the farms were family owned and operated and only 3.4% were corporately managed, yet almost 44,000 farms of a total of 53,601 produced less than \$50,000 in income. Over 90 per cent of agricultural production, including fisheries and forestry, is done in Eastern NC. ECU supports the infrastructure for the NCAI to address the health and safety problems of this population through partnerships with NC Agricultural and Technical State University and North Carolina State University. Other key state partners include UNC, NIOSH Occupational Research and Education Center, NC Area Health Education Centers, and Research Triangle Institute. The Institute supports faculty to conduct research that can be translated into effective practices, policies, and programs to reduce the risk of all members of the agricultural community working in farming, fisheries, and forestry and their families.

The NC Agromedicine Institute is vigorously developing a new mixed funding strategy for collaborative research projects to improve the health and safety of the agricultural community, including farmers, foresters, fishermen, their families and community members. Key strategic accomplishments that poise our Institute to develop a new, successful research program include:

- Appointment of a permanent Director of the NCAI, a Director of Educational and Outreach Programs, a Medical Director, and a Ph.D. epidemiologist postdoctoral staff persons. All appointments were the results of national searches
- Produced the 2001- 2006 Southern Coastal Agromedicine Center Evidence Package for review by the National Academy of Sciences, the National Occupational Research Agenda Agricultural Sector Committee, and the National Institute of Occupational Health and Safety
 - This package included a review of the outcomes of over 30 research, educational, and outreach projects funded through the center over the past six years
- Held the inaugural meeting of the new NCAI Board of Partners, representing three universities, members of agricultural communities, agricultural businesses, government agencies and non-governmental organizations
- Completed a successful site visit by the National Institute of Occupational Safety and Health, resulting in an invitation to develop an application to renew NCAI's status as the Southern Coastal Agromedicine Center. Currently NCAI is one of 9 national agricultural centers and will seek funds to retain this status.
- Secured over \$300,000 in extramural awards.

5.2 Center for Health Disparities Research (C-HDR)

Eastern North Carolina is plagued by glaring health disparities. For example, the non-white age-adjusted mortality is 20% higher than the white rate; the non-white male rate is 28% higher than the rate for white male, while the non-white female rate is 15% higher than the rate for white females. Vice Chancellor Mageean realized that East Carolina must take a leadership position in the elimination of health disparities in the eastern region of North Carolina. To that end, ECU set out to establish a center for the study of health disparities to conduct, promote, and coordinate interdisciplinary research on the dimensions, causes and most effective means to eliminate health disparities in eastern North Carolina.

The vision of the Center for Health Disparities Research (C-HDR), to be directed initially by Cynda Ann Johnson, MD, MBA, is to improve the quality of life and eliminate health disparities in eastern North Carolina through the application of research findings. To make that vision a reality, the center will create community partnerships and facilitate innovative research projects by leveraging ECU and community resources. Community members and University researchers will work together in equal measure using the principles of Community-based Participatory Research (CBPR).

Through the process of development of the Center, already over 80 individuals from ECU and the community who are active in the study of health disparities are registered in our database. Their areas of interest sort into three broad categories of disparities research: populations, disease states (particularly those over-represented in eastern North Carolina), and access to care issues. Increased opportunities for external funding will exist with the coalescence of this activity into a Center.

The Establishment Plan for the C-HRD has been written and is awaiting approval from the Centers and Institutes Review Committee and the Chancellor's Executive Council.

5.3 Institute for Interdisciplinary Coastal Science and Policy (IICSP)

The proposal and plans for IICSP were approved in August 2006 and this new institute came into existence on July 1, 2007. The search for a Director commenced in early 2007 and is continuing. The Institute, currently led by an Interim Director, has seven support staff (including Diving and Water Safety) and seven faculty members jointly appointed in four departments. Two additional faculty members will be added each of the next two academic years. IICSP also houses the Coastal Resources Management PhD program, composed of a director, one support staff and over 30 PhD students. Approximately 40 additional ECU faculty members have various coastal interests and have and will collaborate with IICSP faculty and students.

The Institute initiates, promotes, and coordinates interdisciplinary research on all aspects of estuarine, coastal, and shallow marine environments. The goal is to enhance understanding of the complex interactions between human behavior and the marine environment and its resources, and to draw on this understanding to develop sound public policy.

Specific objectives of IICSP:

- Identify, initiate, promote, coordinate, and direct research and instructional initiatives designed to advance understanding of natural and human systems, and the interactions between them;
- Develop and submit large-scale research proposals that integrate natural and human system dynamics;
- Develop methodological approaches and theoretical perspectives that advance integrated understanding of the coastal environment and human systems;
- Provide the detailed understanding of these coupled systems required to design and implement sound public policy and balanced economic development.
- Enhance graduate and undergraduate education by providing opportunities for students to participate in coastal resources research projects;
- Disseminate the findings and recommendations of Institute investigators to a broad audience of scholars, citizens, decision-makers and educators.

Three examples of the relevance of coastal research at ECU, which will be enhanced by the new Institute, follow:

- Recent research findings have been communicated to the NC Department of Transportation to inform their deliberations concerning reengineering Hwy 12 and replacement of the Bonner Bridge across Oregon Inlet.
- Recent and ongoing research contributes to the deliberations of the NC Coastal Resources Commission, which is developing management recommendations for every inlet along North Carolina's coast.
- Ongoing research indicates that the rate of relative sea-level rise along North Carolina's coast is greater than the international scientific community's predictions due to regional subsidence.

Accomplishments

- Established the *Institute for Interdisciplinary Coastal Science and Policy* (IICSP) via procedures coordinated through the Division of Academic Affairs, including the writing and approval of the IICSP establishment plan

- Initiated the search for a permanent IICSP Director. Interview process is ongoing with final outcome expected in Fall 2007
- Worked with ECU administration to garner space in Flanagan for the headquarters of IICSP
- Collaborated with the NC Academy of Science to conduct a toxicology workshop in the spring 2007 for NCAS attendees and ECU coastal faculty
- Coordinated cooperative activities with the *Coastal Studies Institute* in Manteo; initiated the hiring process for collaborative faculty; assisted in the formulation of budgets and new programs in the areas of estuarine ecology, maritime studies, ecosystem sustainability, and geological processes.
- Worked with the Division of Research and Graduate Studies to coordinate efforts to establish a formal working relationship with the University of Malaysia Terranganu (UMT), including recruiting doctoral students from UMT to the ECU CRM program

5.4 PhD Program in Coastal Resources Management (CRM)

The CRM program provides an integrated, multidisciplinary approach to coastal studies that emphasizes the role of science in public policy. As the only program of its kind in the nation, ECU faculty nurture skills in the acquisition, interpretation, and synthesis of scientific information on coastal environments and people. Top strategic goals for the past year were to raise the visibility of ECU's role in coastal studies; continue a steady rate of graduation by CRM students; and promote doctoral student research on coastal problems important to North Carolina.

CRM students have contributed to building national awareness of ECU's coastal work through competitive awards, internships, and jobs. For example, the North Carolina Sea Grant program selected a CRM student as a Sea Grant Science Communications Fellow, another as a Maritime Heritage Fellow. Graduates are making a positive impact in the work place and in doing so, serve their communities and provide recognition for the university. Ten graduates to date, plus 10 students just shy of completing all requirements, are working in state and federal management agencies (12), higher education (7), and independent consulting (1). Finally, ECU was accepted by unanimous vote as a full member of Ocean Leadership, a coalition of the nation's major ocean research universities dedicated to promoting the role of ocean research and policy at the highest levels of government.

- Two students received doctorates in 2006-2007, bringing the total number of graduates to 10 in the first 8 years of the program, 3 in coastal and estuarine ecology; 2 in coastal geosciences; 3 in social science and public policy; and 2 in maritime studies
- The median time to graduation is 5.0 years compared to a national median for all doctorate degrees of 7.5 years

The North Carolina coast provides an excellent laboratory for doctoral research on the many complex issues confronting coastal resources management in this rapidly changing environment. Although student research is not limited to coastal North Carolina, many students are addressing issues of direct interest to the citizens of the state. These include, for example, climate change and sea level rise; the geological framework of the Outer Banks and the exposure of these communities to hurricanes and severe storms; the communication of hazards warnings; conflicts over the recreational uses of the national seashores; fisheries management; public access to the beaches; and the ways in which local officials obtain knowledge about the environmental consequences of public decisions.

5.5 North Carolina Center for Sustainable Tourism

The Tourism Center continued to develop in the 2006-2007 academic year hosting a conference, supporting outreach activities and expanding its mission. Specific goals for the year included:

- Hosting the second ECU sponsored tourism conference in Greenville in the fall of 2006
- Securing full ECU and NC System approval as a Center
- Searching for and hiring a new Director for the Center
- Supporting the development of an new interdisciplinary MS degree in tourism
- Extending and supporting outreach activities in the region within the tourism community.

To support the activities for the year and to give direction to the search for a new director, a framework for the center was written and shared with faculty and staff sharing an interest in tourism, in tourism and travel development in the state and in the development of a tourism MS degree.

- The Tourism Center changed its name to the North Carolina Center for Sustainable Tourism and was officially approved by ECU
- A second ECU tourism conference was held in Greenville called “Making Tourism Work for You”:
 - Campus sponsors included the Center for Sustainable Tourism, the College of Business, the College of Human Ecology, Department of Hospitality Management, the College of Health and Human Performance, Department of Recreation and Leisure Studies, and the Thomas Harriot College of Arts and Sciences, Department of Geography
 - External sponsors included North Carolina’s NorthEast Region, Hilton, Greenville, North Carolina’s Eastern Region, Pitt Community College, Impressions Magazine, East Carolina Bank, Leisure Publishing, Tranter’s Creek Resort and Campground, Out State Magazine, and Parrott Canvas Company
 - Speakers included faculty from ECU and NCSU along with tourism professionals from the nonprofits and business sectors.
- A search for a new director was initiated in 2006-07 and Dr. Pat Long (Leeds School of Business at the University of Colorado in Boulder) was hired this September and will begin his duties in October 2007
- A new interdisciplinary MS degree in Sustainable Tourism is being planned and will be finalized for review at the University level in the fall of 2007

5.6 RENCI@ECU: Center for Coastal Systems Informatics and Modeling

The Renaissance Computing Institute (RENCI) is a major collaborative venture supported by the state of North Carolina. RENCI focuses on finding solutions to complex, multidisciplinary problems. The institute is a virtual organization that includes founding members The University of North Carolina-Chapel Hill, Duke University and North Carolina State University and regional engagement centers at East Carolina University and the University of North Carolina Asheville.

RENCI@ECU is a regional engagement site with \$1.7 million in external funding over three years that studies coastal disasters by bringing together researchers in a wide range of disciplines to develop a better understanding of how the physical landscape, biological coastal processes, human activity and demographics impact the environment, the local economy and human life when disasters hit the coast. The goal of RENCI@ECU is to build and maintain an

integrated North Carolina coastal informatics system that includes public health records, records of geological, biological and chemical processes, information about human activity, attitudes, social networks, and population densities, and inventories of disaster response resources. The new RENCI site will be closely aligned with ECU's Center for Coastal Systems Informatics and Modeling, or C-SIM.

The center for Coastal Systems Informatics and Modeling (C-SIM) involves seventeen ECU faculty members across ten departments and both campuses (East Campus and Health Sciences Campus). There have been interactions with county and state emergency managers and state department of public health to identify needs and focus research. All task areas have initiated research.

RENCI@ECU/C-SIM projects:

- Coastal Disaster Impact on Public Health: at-risk populations
- Coastal Environmental Modeling
- Pollution in Coastal Environments
- Coastal Hazards and Human Dynamics

Accomplishments:

- Established RENCI@ECU offices with external funds including appointing a director, renovation of space, acquisition of furniture, office equipment and hiring staff
- Established an operational website: <http://www.ecu.edu/renci>
- Began acquisition of the center's core technologies, including a computer access grid, a high-tech computer visualization wall, and a fully equipped mobile unit for outreach activities to regional schools

5.7 Center for Security Studies and Research (CSSR)

National security may be today's most overused and abused term. The problems associated with years of build-up of nuclear, chemical and biological weapons include not only the threat of their use by terrorists, but also the environmental and health legacies associated with their production, maintenance and destruction. Safeguarding existing stockpiles and protecting nuclear materials costs billions of dollars annually and is done to differing standards in different countries. Energy and environmental problems are known to undergird many conflicts across the world. Coherent, long-term approaches to these deep security issues are in short supply. In this context, in 2003, ECU established the Center for Security Studies and Research (CSSR) with the mission to develop new knowledge and educate future citizens to mitigate the unintended consequences of our historical struggles for security and to enhance, support, and facilitate emerging, globally-connected, environmentally-conscious science and technology for secure coexistence. The goal is, fundamentally, sustainable security.

The Center is directed by C. Ruth Kempf, Ph.D., a scientist, researcher and manager who has over 20 years of experience in nuclear energy and waste management, nuclear and chemical safeguards, arms control and international nonproliferation. Her deputy is Alex Sabelnikov, ScD., PhD, MD, a widely-published biologist and biophysicist. Together they have forged the programs under which CSSR projects are done, working with collaborators from Harriot College of Arts and Sciences, the College of Health and Human Performance, the College of Technology and Computer Science, and the Brody School of Medicine. Some completed projects are:

- Modeling and analysis of biological agent detectors and detection systems

- Development and investigation of gaming approaches to studying the behavior of the “insider” at nuclear or other secure facilities
- Development and delivery of new courses in Bioterrorism and Biosecurity
- Establishment of Partner Status with the International Science and Technology Center in Moscow, Russia

As part of our environment/energy focus, the Center is helping develop Greenville’s energy efficiency house tour for this year’s North Carolina Sustainable Energy Day, which will be held on October 13, 2007.

The Center has also begun a large laboratory research program, funded at over \$800k for 2007 and anticipating over \$3M in 2008 to investigate possible protective or supportive substances which could be used against radiological or chemical exposures in large, civilian populations. Separately, a small study with human subjects is in progress to test a proprietary protective supplement which is used by Russian nuclear and chemical research facility staff as well as military personnel.