Inn East Carolina UNIVERSITY



Division of Research & Graduate Studies

Annual Report

2009-10

Countless miles of coastline stretch around the world.



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From the Vice Chancellor, Explore, Create, Engage...

The Division of Research and Graduate Studies envisions an ECU environment rich with exploration, creativity, and engagement. The mission of the Division is to promote scholarship that is both ethical and of such high quality as to be demanded regionally and nationally. It accomplishes this with effective leadership in, and organized support for: research, creative endeavor, community engagement, economic development, and graduate education.

The Division of Research and Graduate Studies is pleased to provide this brief description of ECU's many exciting accomplishments in promoting and supporting graduate education, research, creative activities, engagement, and economic development. The data and examples supplied here are but a small portion of the activities that exemplify the energy and the enthusiasm that faculty, staff and students bring to bear upon some of our most pressing issues. As a result of this collective activity, ECU's external grant and contract awards set a new record and nearly eclipsed the \$50 million mark, which derived from a portfolio of 707 proposals and nearly 450 new or continuing awards, including 24 Recovery Act Awards. For example, our physics department will receive a new atomic particle accelerator, which is valued at nearly \$900,000. Our support of the scholarly activities of faculty and students remains very strong despite difficult budgetary times. Our startup packages, individually tailored to assure that new faculty face minimal obstacles to research success, exceeded \$3.9 million (\$2.9 million from RGS and \$1 million from units). Important support for coastal research initiatives is provided with the acquisition of a new research vessel, the 34 feet R/V Stanley R Riggs. Other indicators of research productivity also are on the rise. For example, the number of published articles by faculty has grown from roughly 1600 in 2007-08 to over 2000 in 2009-10, an increase of 25 percent. Our Office of Engagement, Innovation, and Economic Development (OEIED) has enjoyed an award winning year. The OEIED's Innovators Academy, supported by our investment in an advanced design lab, has gained national recognition for its efforts to instill a culture of innovation on our campus and within our region. That office has touched numerous places and people with its effective programs of outreach and engagement. OEIED assists with patent production, licensing, and spin-off businesses; this activity pays testimony to this university's commitment to economic development and job creation within our region. Our desire is to design a near seamless regional accessibility to this university's wealth of knowledge and creativity.

Strategically Speaking

A host of pressures are currently felt in large portion by our country's public research universities including ECU. Public universities face declining public support, they receive mandates to monitor research activities that are largely unfunded, and they have seen a tremendous increase in expectations for spawning commercial activity and jobs. As a result, we must use our scarce resources in the most efficient and effective manner possible. We must think and behave much more strategically.

From an effectiveness perspective, we constantly probe for multidisciplinary approaches to address key environmental, health and social issues. For example, our approaches to understanding coastal issues, natural hazards, health disparities, sustainable tourism and cures for disease all involve investigators from wide spectra of disciplines supported by advanced technologies. We will continue to develop such collaborative efforts as the division aggressively bridges key disciplines often spanning a large number of colleges. In the upcoming year, we plan to initiate an "East/West Collaborative." In order to attack key diseases, like diabetes, we must bring investigators from the traditional sciences together with those from the Brody School of Medicine. This collaborative grant competition is designed to do just that. In addition, we have some initial plans to develop innovative programs around the integrative theme of water. We envision collaborations of earth scientists, life scientists, and engineers working on varied aspects of this precious resource. We intend to move forward with initial planning of a new biological and life sciences building to be occupied by multidisciplinary teams working on the key issues of our time and providing solutions to problems that might have commercial value and the potential

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for job creation. Our strategic STEM initiatives must be highly selective and implemented with sufficient concentration of funding to create the critical masses necessary for success. And, our discoveries will not sit in the ivory tower with minimal benefit. OEIED will champion the translation of such research into products and processes that yield patents, innovations, and jobs. In addition, that Office will continue to lead effective community engagement with our region and foster a culture of regional innovation.

While we have much to be proud of, the future of our region is tied to our own success as a public research university and we are tireless in our efforts to assist this region in attaining its full potential. We intend to do this so well that we emerge as a national model of regional transformation that others will admire and emulate.



Deirdre M. Mageean, PhD Vice Chancellor for Research and Graduate Studies



The Division Celebrates A Productive Year of Exciting Accomplishments

The Year in Numbers

ECU's external grant and contract awards set a new record high of \$48.6 in FY 2009-10 with an increase of 20% from the prior year (Table 1 and Figure 1). 450 new and continuing awards constituted this total including 24 Recovery Act Awards from a variety of federal agencies as well as the NIH and NSF. Grants supporting research and instructional activities increased this year by 30% and 20%, respectively, compared to last year while service awards remained essentially flat. Since FY 2004-05, University external awards have increased by 47%. Among

the colleges and schools significant increases in awards occurred in the Thomas Harriot College of Arts and Sciences (88%) and the Colleges of Education (24%). A major component of the Harriot College's increase is a \$900,000 award from the NSF for a new particle accelerator in the department of physics. The division also experienced significant growth (90%) due in part to major increases in the Center for Health Disparities research and the Agromedicine Institute.



2004-05 2005-06 2006-07 2007-08 2008-09 2009-10

Fiscal Year

Figure 1. ECU external grant and contract awards

	External Awards				State States		
Fiscal				Total	Expendi-	Overhead	Rec'd
Year	Research	Service*	Instruction	Awards	tures**	Rec'd	Rate***
2004-05	\$17,455,498	\$11,245,534	\$4,375,331	\$33,076,363	\$28,627,794	\$3,534,813	14.1%
2005-06	\$20,591,658	\$13,158,365	\$4,223,920	\$37,973,943	\$29,004,744	\$3,889,492	15.5%
2006-07	\$21,772,335	\$13,211,902	\$3,575,565	\$38,559,802	\$31,379,962	\$3,879,143	14.1%
2007-08	\$21,867,923	\$20,123,113	\$2,612,110	\$44,603,146	\$35,873,437	\$4,556,651	14.6%
2008-09	\$20,375,821	\$15,355,513	\$5,029,628	\$40,760,962	\$39,288,031	\$5,066,435	14.8%
2009-10	\$26,456,939	\$15,980,947	\$6,209,647	\$48,665,533	\$41,166,425	\$5,248,354	14.6%

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* Includes student services and scholarships

** Expenditures include direct and overhead expenditures

*** Recovered rate = overhead recovered/direct cost expenditures

During the spring of 2009, new grant opportunities became available through the federal government's stimulus initiative, the American Recovery and Reinvestment Act (ARRA). ECU vigorously pursued these opportunities. As of June 30, 2010, ECU faculty members have submitted 124 proposals requesting \$85 million in new funds. To date, ECU has received 24 ARRA awards totaling \$4.6 million. The National Institutes of Health provided the majority of these awards (14 awards totaling \$3 million).



2004-05 2005-06 2006-07 2007-08 2008-09 2009-10 Fiscal Year

Figure 2. ECU grant and contract expenditures and overhead (F&A) recoveries

Grant and contract expenditures increased 5% from \$39.3 million in 2008-09 to \$41.2 million during the last fiscal year (see Table 1 and Figure 2). Since expenditures typically lag behind awards by 12 months or more, we anticipate that the increase in awards this year will be reflected in this coming fiscal year's expenditure figures. Facilities and Administrative Cost (overhead) recoveries also increased by 5% and, thus, continued their steady increase from previous years. These overhead recoveries help offset indirect project costs such as utilities, building maintenance, janitorial services as well as administrative costs such as grant administration services, secretarial services, financial services, compliance efforts, etc. A portion of these overhead funds are also used by the units and the division to promote the university's research activities, e.g., new research equipment, up-fitting shell lab space, grant matching funds, seed grants, and startup packages for new faculty. Many local and state agencies and most non-profit foundations do not allow overhead costs. Reliance on these sources of funds places an additional financial burden on the university when we accept a large proportion of these kinds of projects. Our overhead recovery rate (Table 1) has been holding steady at 14.5% for several years. Increasing this rate and enhancing overall recoveries is one of our continuing goals.

The steady increase in overall recoveries in the past few years suggests ECU's faculty members are pursuing and obtaining more federal grants which typically allow full indirect cost recovery. The distribution of awards by sponsor type for 2009-10 is displayed in Figure 3.





Figure 3. The distribution of 2009-10 awards by sponsor type (millions of \$ and %)

The level of federal awards increased by 50% in the past year from \$14.6 million to \$21.9 million. These data indicate continuation of a positive trend where faculty members are increasing their submissions to federal agencies

and are experiencing higher success rates. The above figures indicate that ECU is becoming more competitive in the national arena. Federal grants provide the bulk of our overhead cost recoveries, thus increases in federal awards increases the university's ability to foster continued growth of its research enterprise. In addition, our overall state grants and contracts increased by a healthy rate of 23%. These increases more than offset decreases in funding from for-profit enterprises and the UNC system.

The division tracks university research investments, such as startup funds, research development awards, purchases of equipment, grant matching funds, etc. These investments come from both the division and the colleges. The division also tracks the outcomes of these investments such as externally funded grants and contracts research, expenditures, and overhead recoveries. Detailed reports of these statistics are distributed periodically to deans and departmental chairpersons to help them identify and focus on strategic research issues within their colleges and

departments.

Table 2 summarizes ECU's scholarly output for the last two years as measured by some of the more important metrics. Particularly noteworthy is the major increase in journal articles, about 25%, that has occurred in the last two years.

	Pul	olications			Exhibitions, Pe	erformances, Activities	and other (Creative
	Fis	cal Year		% change		Fiscal Yea	ar	
	2007-08	2008-09	2009-10	2007-08 to 2009-10		2007-08	2008-09	2009-10
Journal Articles	1604	1836	2037	27.0%	International	55	76	66
Abstracts	385	519	417	8.3%	National	145	177	129
Books & Chapters	391	493	611	56.3%	Local & regional	136	184	187

Table 2: ECU peer reviewed publications and creative activities

Juried Creative Activities

Selected Highlights and Achievements

The items that immediately follow are used to highlight some of our faculty members' more notable achievements for the year. They are but a sample of exciting accomplishments attained by our faculty.

Dr. Huigang Liang, a faculty member in the College of Business, focuses on conducting information technology research with underdeveloped regions or populations. He and two other investigators are finishing a three year \$1.33 million grant project from National Institute of Health that seeks to alleviate Cherokee adolescents' substance abuse. Based on this success, he participated in the VIP Summit on Information Technology Partnerships between US and African Institutions which was held in Cameroon, Africa.

Dr. Deborah Thomson, Assistant Professor in the School of Communication, examines the discursive tactics used by the food industry to promote the consumption of unhealthy foods and was honored by the Southern States Communication Association with the Rose B. Johnston award for the top article in *Southern Communication Journal* in 2009.

Ken Wyatt's 28-minute documentary "Pray for Eric", a film about Eric Rudolf, a domestic terrorist and fugitive that lives in western North Carolina for many years, won Best Coming of Age Film at the Mountain Film Festival. The work was also an official selection of the San Diego Black Film Festival, Bare Bones Film Festival, Black International Cinema Berlin Film Festival and the upcoming 2010 DocMiami International Film Festival. Wyatt was awarded the Southern Documentary Fund's fiscal sponsorship for the work, supporting post-production and distribution expenses.

Dr. Nathan Richards (Maritime Studies) and Dr. Tom Allen (Geography) and students in ECU's underwater archaeology program are conducting an inventory of German and Allied naval vessels along the U.S. eastern

seaboard that were involved in the Battle of the Atlantic during WWII. This project is funded by the National Park Service's American Battlefield Protection Program (ABPP). The \$80,000 grant to Drs. Richards and Allen was the largest award from ABPP given this year.

Dr. Jason Bond (Biology) and students hosted the Thirty Fourth Annual Meeting of the American Arachnological Society at ECU in June 2010. The meeting attracted over 100 national and international scientists presenting their work on aspects of arachnid biology. Dr. Bond is an internationally known spider systematist whose work is funded by the National Science Foundation and the Field Museum of Natural History. His work has been showcased on national television (the Colbert Report).

Drs. J.P. Walsh and Reide Corbett (Geological Sciences and ICSP) are involved in NSF funded research off the coast of New Zealand. The underlying goal is to better understand the dynamics of how river and marine sediments are deposited on continental shelfs.

Dr. Jeff Shinpaugh and Dr. Larry Toburen, physics professors, were awarded an NSF grant of nearly \$900,000 to acquire a particle accelerator and supporting instrumentation for the ECU Accelerator Laboratory in the Department of Physics.

Dr. Hong-Bing Su (Geography) was awarded a three year grant to collaborate with ecologists at the University of Connecticut to examine tree-sway, turbulence and its effect on the exchange of CO_2 in and above a forest canopy.

Dr. Donna Roberson (PI) is funded by the Robert Wood Johnson Foundation to examine strategies for reducing the spread of AIDS and STDs in incarcerated women. Dr. Martha Engelke continues her award winning research program which focuses on the effective practices of school nurses.

Dr. M. Nasseh Tabrizi, professor in the Department of Computer Science, and his colleagues have obtained funding from the National Science Foundation to investigate Agent-based Virtual Reality (AVR) systems which have significant advantages over other 3DVR in educational settings. The AVR system operates on low bandwidth frequencies, allowing it to reach rural and disadvantaged populations.

Dr. George Wang, assistant professor in the Department of Construction Management, is currently working on a \$218,000 research project on tire-pavement noise. His work is part of the Federal Highway Administration's efforts to mitigate traffic noise nationwide. Tire-pavement noise occurs at medium to high vehicle velocities and is the predominant component of traffic noise. The research has attracted the attention of other states' transportation departments.

Dr. Paul Kauffmann, professor in the Department of Engineering has been awarded a grant by the Golden Leaf Foundation to support development of the aerospace workforce across the state and particularly in the east. To support this goal, ECU Engineering is leading a partnership with the community college system and the four BS engineering programs in the UNC System.

The Upgrade and Save program has been housed in the College of Technology and Computer Science at East Carolina University since 2007. The program has expanded from 10 to 52 North Carolina counties with 50 manufactured home retailers actively participating. In 2009-2010, 210 heat pump upgrades, 292 ENERGY STAR Manufactured Homes and 7 retrofits were installed, saving an estimated \$327,287 in that year alone.

Strategic Advances

The prestige of a public university is built upon both the traditional measures of success (research productivity, scholarship, and the quality of its graduates) and the effectiveness of its engagement with the community, locally

and state-wide (e.g., the outreach services it supports and the economic development that it generates). Key to success in these areas is dedicated, passionate faculty members who are active in research and engagement. However, high quality research and engagement is costly and usually requires external funding. Nationally, competition for grant and contract funding has increased significantly over the last decade. If East Carolina University is to continue to increase its research and scholarship, enhance its prestige and serve the needs of eastern

North Carolina, it must recruit and retain dedicated faculty and increase the amount of external funds to support their students' research and engagement activities. The division has implemented four strategic initiatives to recruit and retain research/engagement active faculty and to facilitate their efforts to achieve significant external funding (see below). Below, we next review the progress of these initiatives.

- Recruit new faculty members with a high potential for research and scholarly productivity by offering competitive research startup packages.
- Enable existing faculty to improve their chances for external funding by providing research development (seed) awards.
- Increase available research laboratory space by promoting both new construction and effective utilization
 of existing space.
- Provide faculty and proposal development services to enhance the environment for successful proposals.

Faculty recruiting - research startup packages

In many disciplines, recruiting faculty members with substantial research/engagement potential is a highly competitive endeavor. Often times, an adequate startup package, especially in technical fields, can make a significant difference when recruiting faculty with outstanding 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 recruiting packages. Startup packages provide funds for laboratory equipment, supplies, student help stipends and other needs over a period of one to three years that enable faculty to establish vigorous, productive externally funded research programs. Listed in Table 3 are university startup commitments from all sources (RGS, college, and department) since the inception of the research startup program in 2005. Estimated commitments for 2010-11 are also presented. In spite of more limited resources available to the university in the past year, the division has been able to maintain this important strategic program.

		RGS	College	Total
Fiscal year	# Faculty*	Contribuion	Contribution	Startup

able 3: New Faculty Research S	Start-up Comn	nitments per Year
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2005-06	27	\$1,010,261	\$510,363	\$1,520,624
2006-07	46	\$924,117	\$330,117	\$1,254,234
2007-08	75	\$1,950,273	\$780,649	\$2,730,922
2008-09	97	\$3,901,911	\$1,479,327	\$5,381,237
2009-10	86	\$2,925,033	\$1,026,757	\$3,951,791
2010-11**	80	\$2,432,162	\$971,618	\$3,403,780

*Number of faculty receiving new or continuing funds in the indicated fiscal year.

New faculty may receive up to three years of start-up funding ** Future Estimate

Startup funds represent a significant investment in the future 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 startup recipients' productivity over a period of several years starting in the third year at ECU. (It often requires 2-3 years for a new faculty member to establish a foundation for a research program.) Detailed progress reports by faculty members are provided to deans and chairs. Table 4 shows the return on investments through June 2010 for the first three cohorts of faculty that received startup funds in fiscal years 2005-06 through 2007-08. For the 2005-06 cohort, an investment of \$1.8 million returned \$7.1 million in new grant and contract awards to June 2010, for a return on investment (ROI) ratio of 4.2. In the

computation of this award figure, only awards where the startup recipient was the principal investigator were included. For the 2006-07cohort, a \$1.1 million investment yielded a \$1.7 million return giving a return of investment of 1.6 to date. Similar figures for the 2007-08 cohort are a \$4.7 million investment, \$4 million in awards and a 0.86 return on investment. The difference in the return on investment between the three cohorts is largely a function of the number of years these faculty members have been at ECU (three to five years). We expect these

ratios to continue to increase over the years, especially as new assistant professors receive mentoring from their colleagues and establish new, vigorously funded research careers.

Table 4: Return on investments: startup funds							
	Startup funds provided through						
Cohort ^a	2009-10 ^b	Yrs at ECU	Awards as PI	ROI ^c			
2005-6							
Assist. Professors (17)	\$1,077,401	5	\$3,212,577	2.98			
Assoc. & Full Prof. (7)	\$754,967	5	\$4,504,932	5.97			
All Recipients (24)	\$1,832,368	5	\$7,717,509	4.21			
2006-7							
Assist. Professors (19)	\$563,443	4	\$634,496	1.13			
Assoc. & Full Prof. (7)	\$525,102	4	\$1,113,709	2.12			
All Recipients (26)	\$1,088,545	4	\$1,748,205	1.61			
2007-8							
Assist. Professors (24)	\$3,315,868	3	\$2,912,747	0.88			
Assoc. & Full Prof. (11)	\$1,384,772	3	\$1,113,709	0.80			
All Recipients (35)	\$4,700,640	3	\$4,026,456	0.86			

a Excludes awards for infrastructure improvements and their recipients and recipients who resigned

b Includes unit and RGS contributions

c ROI: Return on Investment is the ratio of awards to investments

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. Not surprisingly, the greatest return on investment was earned by senior faculty hires, associate and full professors.

Enabling more competitive grant submissions--research development awards The competitiveness of grant submissions to federal or similar grant programs is greatly enhanced by the inclusion

of preliminary data in the application. The division's Research Development Award Program was instituted in 2005-06 to assist current faculty members to obtain such data. The division holds an annual competition for research development awards (RDA). The goal of the 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 funded by the RDA program. Submission of a proposal to an external sponsor is required within a year. Funds may be used for small equipment, research expenses, and salaries for students, etc. The maximum amount that can be requested for a single investigator proposal is \$20,000. In the past two years, to promote interdisciplinary collaboration, the division instituted a collaborative RDA proposal where two faculty members from different departments can jointly apply for an award. The maximum amount that can be requested for these collaborative proposals is \$40,000. An additional amount of up to \$15,000 can be requested as part of a single or collaborative RDA proposal to support a doctoral student's participation in the proposed project.

Fiscal year	# Faculty PIs	Amt invested	
2005-06	23	\$551,373	
2006-07	22	\$609,342	
2007-08	21	\$485,208	
2008-09	23	\$446,930	
2009-10	No Competition		
2010-11*	11	\$264,797	
Future Estimate			

A total of \$2.1 million in research development awards to 89 faculty members in four cohorts has been made since the program's inception (see Table 5). State budget restrictions necessitated the suspension of the RDA program for 2009-10. The division was able to reinstate the program this past year and held a competition for awards for the 2010-11 academic year. A study of the grant productivity post RDA awards for the 2005-06 through 2008-09 cohorts showed that a total of \$7.1 million in new grant funds had been awarded to the 23 awardees as of June 2010 for a return on investment of almost \$13 per \$1 invested. Subsequent cohorts also have excellent returns on investments. These returns represent a significant increase from last year's report for the 2005-06 and 2006-07 cohorts where the ROIs were 5.25 and 1.1 respectively. We expect the return on investment to continue to increase in future years. Figure 4 illustrates the increase in the return on investment over time.



Figure 4. Rate (\$) of return on investments: Research Development Awards

The forerunner of the RDAs is the Faculty Senate Research/Creative Activity Grant program. It has been in existence since 1984 and continues to be active. The program encourages meritorious research and scholarship in disciplines that traditionally do not have many sources of external support. It provides a balance to the RDA program by helping maintain the research and scholarship of all ECU faculty. The Faculty Senate holds the competition, evaluates the applications and recommends projects for funding. The division makes the awards. These awards come from funds designated for this purpose in the university's state budget. For fiscal year 2009-10, 19 meritorious proposals were awarded totaling \$218,789.

Increasing available space for research

As research activities increase and ECU begins to realize its ambitious plan for scholarly growth, significantly more specialized space will be needed for faculty, graduate students and undergraduate students engaged in research.

The need for research space at ECU has reached a critical status over the past two years. Important university initiatives are inhibited as we bump squarely into this space constraint. Recruiting new faculty members with a significant potential for research and retaining faculty with proven research programs is a highly competitive endeavor. One of the key recruiting/retention tools used by many universities is high quality research space. As of last year, ECU had exhausted its inventory of research space, thus significantly hampering our ability to recruit/retain highly productive research-active faculty. Colleges are now reporting the loss of productive faculty due to the lack of research space.

To help address this problem, RGS has focused on two initiatives: build new space and use current space more

effectively. The division will be investing funds to complete up-fit of shell research lab space in the Science and Technology Building and the Heart Institute Building. These funds have accumulated over the past years from recoveries of facilities and administrative (F&A) overhead costs. The usage of F&A recoveries is an excellent example of how these funds can be used to promote research. The university, through the leadership of the division, is also advocating to the state legislature for the construction of a new biosciences building on the main campus

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although the current economic situation has hampered this initiative. The biosciences building is the number one priority capital request for ECU.

Another complementary approach to the space issue is the more effective allocation of space to uses which will be in line with university-wide missions and priorities. In order to support effectively such space allocation (or reallocation) and long-term planning in a rational manner, the division collects and periodically distributes research space utilization metrics to deans and chairs (see Table 6). These metrics are based on net assignable square feet (NASF) of research space. In eight colleges with a significant amount of laboratory space per faculty member, utilization data for the most recently available five year period (FY 2005-06 to FY 2009-10) ranged from 12.3 NASF/FTE to 951 NASF/FTE with an average of 278 NASF/FTE. Average annual grant and contract expenditures, a measure of the productivity of the lab space, per square foot of lab space at ECU ranged from \$35 to \$213 with a median rate of \$90/NASF. This median figure is low when compared to national standards. Deans, chairs and directors were asked to develop enhancement plans for individual labs that perform significantly lower than college and university norms. These plans may need to include re-assignment of space.

Colleges	Net Assignable Square Feet (NASF) ¹	Track Faculty (TT-FTE) ⁸	Research Space per TT-FTE	Research \$ 9	\$ per NASF
Arts & Sci. Bio/Phys. Sci. ²	57,167	89	642.3	\$2,554,055	\$44.68
Arts & Sci. Soc. Sci. 3	5,825	61	95.5	\$208,088	\$35.72
Health & Human Performance	8,889	58	153.3	\$1,899,894	\$213.74
Human Ecology	861	70	12.3	\$159,643	\$185.42
Technology & Computer Sci.	6,419	48	133.7	\$607,069	\$94.57
Brody School of Medicine-Basic Sci.4	63,689	67	950.6	\$5,592,236	\$87.81
Brody School of Medicine-Clinical ⁴	18,470	UN ⁵	NA	\$1,715,850	\$92.90
Nursing	1,525	34	44.9	\$93,633	\$61.40
Allied Health Sciences	10,584	55	192.4	\$668,162	\$63.13
Research & Graduate Studies	5,355 ⁶	NA ⁷	NA ⁷	\$2,370,871	\$442.74

Table 6: Research labo	pratory space utilization	on per year	for the five	year period	d ending.	lune 2010
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1 NASF is net assignable square feet as of 08/2010 from IPAR

2 Faculty and expenditures limited to Biology, Chemistry, Geology, Geography, Physics

3 Faculty and expenditures limited to Anthropology, Psychology, Maritime History

4 Faculy and expenditures (excluding animal care facilities and unassigned lab space) for basic sciences (Anatomy, Biochem, Physio, ECHI, Pharm, and Path) and

clinical (Cardio vas. Emerg., Fam. & Int. Med, OB/GYN, Pediatrics, Rad. Oncology, Rheumatogy)

5 Undetermined due to the large number of clinical faculty compared to research faculty

6 Lower estimate-with many RGS projects are performed within laboratory spaces assigned to other colleges

7 Undetermined due to the large number of joint and affiliated faculty participating in RGS programs

8 TT-FTE is 5 year mean number of tenure track faculty (fulltime equivalent)

9 Research \$ is the 5 year mean research expenditures

The division also works closely with the ECU Space Allocation Committee. Deans, chairs and directors have been advised that requests for new space must reflect efficient utilization of research space currently assigned to their units, e.g., faculty utilizing research space should have a track record of external funding over the last 5 years. When allocating new research space, higher priority will be given to units that use existing space efficiently (e.g., expenditures per net assignable square foot of research space) and areas targeted for strategic growth and investment.

Faculty and proposal development services

The Division of Research and Graduate Studies works collaboratively with the nine colleges at ECU to provide training and mentoring services to faculty who seek to improve their success in seeking external funding. Examples of faculty mentoring, training, and outreach services provided by the division include:

Direct proposal development and preparation services:

Division personnel lead the development of collaborative relationships (team building) among ECU faculty • and federal, state, and private organizations to increase opportunities for research, training, service and

outreach. Eight such teams were assembled for proposals to agencies such as the NSF, US Department of Education, and the Golden LEAF Foundation.

- Division personnel provided proposal preparation services (organization, editing, writing, sponsor liaison, general facilitation) for seven large, multi-disciplinary and multi-institutional proposals to agencies such as the US Department of Education, North Carolina Biotechnology Center and the US Department of Agriculture.
- Division provided internal and external experts to review draft proposals.

Formal training opportunities to faculty and staff:

The offices of Sponsored Programs, Research Compliance Administration and the Institutional Review Board host many grant and contract training programs. These opportunities will be discussed in detail in their sections of this report.

Off-campus research seminar series:

• "Science at Starlight" seminar series continues to promote collaboration among researchers at ECU and regional for-profit enterprises. The series is co-sponsored by RGS, Sigma Xi and the North Carolina Biotechnology Center (NCBC). NCBC is the primary funder of the program and regards this among the most successful of its 'Regional Exchange Groups' seminar programs. To date, 32 faculty and industrial researchers have presented in the series.

Since the series' inception in 2006, 28 ECU presenters have participated in over 60 grant proposals yielding awards worth about \$6 million. At least five new research collaboration (known to us) have emanated from the series, and at least two new research interest groups have emerged from discussions at the seminars (Cell Motility and Spectroscopy Groups). The seminars have also been fertile ground for the recruitment of members for masters and PhD thesis committees. These committees in and of themselves are excellent vehicles to promote collaborations.

- "Downtown Dialogues" seminars continue as a forum to promote interdisciplinary scholarship among faculty in the humanities and the behavioral/social sciences.
- The division is continuing collaboration with Sigma Xi, NCBC and Go Science, a non-profit science

education organization, to present a seminar series titled "Science Café" targeted for a mixed group of faculty and the general public on scientific topics of wide interest. This highly popular program has become a staple of the cultural life in Greenville.

The Division Supports ECU's Impressive Efforts to Educate the Next Generation of Regional, State, and National Leaders...

The Graduate School

The Graduate School at ECU supports 72 master's degree programs, 18 doctoral programs, 7 intermediate degree programs and numerous post-graduate training opportunities. These programs 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 promote 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 complement the university's research, outreach and undergraduate teaching programs.

Accomplishments for the 2009-20010 academic year:

During the past year, the Graduate School enhanced its prominence and credibility as a leader in advancing the quality of graduate education at ECU by:

- Engaging greater involvement of the Graduate School Administrative Board (GSAB) and the Graduate Assembly in policymaking processes;
- Re-establishing strategic priorities and processes for election of graduate faculty;
- Facilitating and completing a full review and rewrite of the graduate school's academic and graduate assistantship policies by the GSAB and Graduate Assembly;
- Implementing more rigorous graduate admissions and readmissions requirements; and
- Implementing new Probation and Retention Standards.

The Graduate Enrollment Task Force was formed and is making steady progress in developing a comprehensive graduate enrollment plan that will guide operational and strategic spending for the next ten years, grounded in the long-term strategic priorities of the university, informed by explicit polices that express the consensus of the deans and senior administrators about acceptable levels of spending and non-financial values in particular areas. The task force was charged to develop a framework for the distribution of teaching assistantships, research assistantships, instate tuition remissions and out-of-state tuition remissions that reflects university and unit strategic and operational goals.



Geology graduate student Robert J. Howard presents his project at the RENCI @ ECU Visualization Challenge in 2010.

Dramatic improvements in the processing of graduate applications were made in the Graduate Admissions Office during 2009-10 academic year. More than 9,000 graduate applications were processed in a timely and accurate fashion. The fall 2010 enrolled class is estimated to be approximately 6,000 students, an increase of about 200 compared to last year. Improvements in the graduate admissions process included:

- Hiring of a new director of graduate admissions;
- Successful transition from a paper-based application system to an entirely electronic system;
- Development of an enhanced communication plan for prospective students including automation of routine email communication informing them of status changes in their applications;
- Automated electronic retrieval of transcript for applicants from ECU;
- Development and implementation of an automated electronic "Reference Letter" system; and
- New policies for admitting, coding and electronic tracking of students admitted by exception and admitted provisionally.

A draft strategic plan for the graduate school was developed including revised vision and mission statements, an analysis of strengths, weaknesses, opportunities and threats, and an action plan with goals, objectives and measurable outcomes. The penultimate draft of the Graduate School Strategic Plan will be widely distributed this fall semester, 2010, with emphasis on communication and requests for feedback from deans, directors, departmental chairpersons, graduate faculty, and unit graduate program directors. The adopted version will be submitted later in

the fall of 2010 semester to ECU administrators for final comments and adoption.

A full review and rewrite of graduate school academic and graduate assistantship policies was completed and adopted by the Graduate School Administrative Board and Graduate Assembly.

Despite the current economic downturn, budget cuts to graduate assistantships were avoided in 2009-2010. Small but strategic increases in graduate assistantship allocations were made in science, technology, engineering and mathematics (STEM) fields, predominantly at the PhD level.

What started out as an energetic Graduate Student Council in fall 2007 has grown in authority and influence to a policy-making Graduate Student Senate

Office of Undergraduate Research

The division asserts that a well-educated student should have access to quality undergraduate research opportunities within any field of study. Therefore, the office of undergraduate research offers competitive awards for research support (<u>URCA grants</u>) and travel funds for students presenting their work at discipline-specific meetings. The office also sponsors the annual Undergraduate Research Day. 2009-10 accomplishments include:

- 27 Undergraduate Research and Creative Activity (URCA) awards were made for a total of \$37,500. 49
 applications were received; the average award was \$1392.
- 13 students presented their research at the State of North Carolina Undergraduate Research and Creativity Symposium (SNCURCS) at UNC-Wilmington.
- Eight students applied and were accepted to present their research at the National Conference for Undergraduate Research in Missoula, Montana.
- Seven students received travel awards to present their research at regional or national discipline-specific conferences. The average award was \$300.
- 33 oral, 63 poster and 1 creative presentation were given by undergraduates on Undergraduate Day during Research and Creative Achievement Week, April 2010.

The Division Supports ECU's Research and Creative Enterprises with Units that Are Efficient and Effective...

Office of Sponsored Programs (OSP)

OSP is responsible for assisting faculty to obtain external grants and contracts. The office helps to find funding sources, aids in proposal development, and negotiates contract awards. Staff also review proposals to ensure that all applicable university regulations are followed prior to submission. OSP tracks and reports on all faculty proposals and awards for ECU and UNC administration. We encourage faculty to take full advantage of these services.

With a desire to improve campus communications, OSP created ASPIRE (Administrators of Sponsored Programs, Research Information Exchange) comprised of OSP, Grants and Contracts and ECU research administrators. The purpose of the bi-monthly group meetings is to inform and educate the ECU research administration community.

Another important communication initiative is WIRED, a new bi-monthly, web-based newsletter designed for investigators and administrators. It features funding opportunities, an events calendar, administrative notices and features on administrative subjects of importance to the sponsored program endeavors of ECU.

In March 2010, OSP began implementing RAMSeS, a UNC system-wide electronic research administration package for proposal routing, approvals and report generation. All of ECU had adopted RAMSeS by early May. RAMSeS automates processes that formerly required documents to be hand delivered to offices. ECU was commended by the RAMSeS General Administration team for being the most organized group they'd worked with in implementing RAMSeS. Ten years of data is in RAMSeS; users are able to use the reporting function to generate pre-formatted, standardized reports. ECU will be among the first universities to have access to RAMSeS S2S (system-to-system). This will enable PIs to build their grants.gov grant applications directly within RAMSeS and to route the entire application electronically, culminating in an OSP direct electronic submission to grants.gov.

OSP coordinated a weeklong visit by consultant, Dr. Lynn Miner, for the purpose of educating faculty about grant writing. Approximately 80 members of the ECU community and some individuals from the Pitt County non-profit sector attended the all-day general session. Over the next four days, 60 faculty members participated in a day long, tightly focused, working session to refine and develop grant proposals in progress.

Office of Grants and Contracts (OGC)

Grants and Contracts is responsible for the post-award administration and financial management of all grants and contracts awarded to East Carolina University. The unit is devoted to assisting awardees to complete their grants and contracts as efficiently and effectively as possible.

The volume of OGC activities, including faculty contacts, sponsor reporting, audit responses and review of transactional documents are increasing in parallel with growth in our awards portfolio.

As a response to stricter audit and documentation requirements, the UNC FIT (Finance Information and Transformation) program was initiated. This program is designed to identify and implement "best practices" for grants administration. These practices are shared with operational units campus-wide.

2009-10 is the base audit year that will provide data for a new federal F&A rate proposal. During the year, OGC staff initiated data collection and began surveying space and financial information in anticipation of submitting the proposal to the federal government in 2011. The new F&A rates will be effective as of July 1, 2011. Our current rate is 43.5%.

Office for Research Compliance Administration (ORCA)

ORCA is responsible for promoting ethical conduct of research and compliance with the rules and regulations governing the conduct of research. The primary foci for ORCA are conflicts of interest (COI), export controls, responsible conduct of research (RCR) training and investigations, and administrative support for ECU's regulatory committees. The ECU regulatory committees supported by ORCA are: UMCIRB (human subjects protection), IACCU (Animal Welfare), IBC (institutional bio-safety), Radiation Safety, Diving and Water Safety, and Environmental Health and Safety.

RCR training:

- Supplemented classroom teaching by providing lectures on compliance to undergraduate and graduate students.
- COI and export control briefing to ECU faculty and staff.
- Prepared RCR training programs for individuals funded by NSF and NIH training grants.
- Wrote compliance articles for ECU research related newsletters and publications.

Policy Development:

 Reviewed ECU policies found in the Faculty Manual and ECU Business Manual that pertain to research for migration to University's Policies, Rules, and Regulations (PRR) website.

COI:

• Improved COI disclosures and management procedures were implemented.

- Developed and in collaboration with ITCS, an online COI disclosure process. •
- Revised Appendix I, Policy on Conflict of Interest and Commitment, of the Faculty Manual and prepared a 0 COI PRR mirroring the revised Appendix I.
- Coordinated and reviewed 2009 ECU COI disclosures and unit reports. •

Export Controls:

- ECU shipments to international countries are monitored for export control compliance. •
- Foreign scholars visiting ECU are screened for export control risks. .
- Document export of "tools of the trade" for researchers exporting research equipment to their oversea • research site.

Investigations:

Evaluated and investigated questionable research practices and possible scientific misconduct occurring on . campus.

Regulatory Committee Support:

- Conducted investigations for IRB.
- Facilitated funding of workshop for training of animal users and IACUC. .

University and Medical Center Institutional Review Board (UMCIRB)

The University and Medical Center Institutional Review Board ensures the protection of humans involved in research activities. It functions autonomously, applying all federal regulations and ethical principles to research conducted by ECU and its affiliates involving humans regardless of sponsorship or research location. ECU's UMCIRB office provides administrative support to the university and medical center Institutional Review Board. Its main office is located in the Brody Medical Sciences Building on the medical school campus and a satellite office located in the Old Cafeteria Building on main campus. UMCIRB receives, processes and maintains records in accordance with federal regulations, state laws and institutional policies for 1,881 submissions requiring review and consideration. In addition, the office engaged the university with improved processes, new technologies, and educational opportunities:

- Conducted 24 formal presentations to campus constituents on ethical issues surrounding the conduct of . human research.
- Attended 21 meetings with PCMH to ensure continued cooperation and compliance with joint research • efforts.
- Held the first IRB Member Retreat to provide education and receive feedback on staff services . •
- Conducted over 60 consultation meetings with investigators and/or research staff. •
- Introduced new processes, new rules, and revised forms to improve IRB submissions and quality of review. .
- Secured computerized IRB submission and tracking system. ۰
- Implemented monthly brown bag education series for medical campus. •
- Initiated monthly brown bag education series for east campus. •
- Secured a Quality Improvement position to provide investigators and research staff with techniques, tips, • and processes to better ensure compliance in human research.
- Developed tools for research personnel to use to increase compliance. •
- Mentored a Campbell College graduate for the Spring Semester. •
- Represented ECU at three national meetings. •
- Provided support to the UMCIRB for 6 behavioral/social science full committee meetings and 12 • biomedical full committee meetings.
- Investigated 9 complaints, concerns, or allegations of non-compliance. •

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The Division Involves the ECU Research and Creative Communities in Centers and Institutes that Address Important Issues from Multidisciplinary Platforms...

Center for Sustainable Tourism (CST)

The Center for Sustainable Tourism at ECU is a unique institute. It promotes sustainable tourism throughout our region and across North Carolina, the nation and beyond, through innovation in graduate education, leadership development, community consultation and collaborative research. An interdisciplinary research center, it houses the nation's first and only interdisciplinary graduate academic degree in sustainable tourism (Master of Science). Its faculty, staff and students are devoted to implementing sustainable practices in business operations, public policies and personal travel behaviors. The CST provides an environment for faculty throughout the ECU system to conduct interdisciplinary research, applied and theoretical, addressing critical issues facing businesses and communities striving to improve both their economic condition and general quality of life.

CST accomplishments for 2009-10 include:

- Received formal approval from the UNC Board of Governors for the nation's first Master of Science in Sustainable Tourism, an interdisciplinary graduate offering.
- Conducted three national webinars for tourism businesses on energy conservation and renewable energy strategies as part of the center's Renewable Energy in Tourism initiative.
- Secured substantial Sea Grant funding to conduct research in Brunswick, Currituck, and Pender, NC, counties on tourism impacts, second home development and sustainable practices, on community life.
- Hosted distinguished scholars, Dr. Martha Honey, PhD, Director of the Center for Responsible Travel, Stanford University and Dr. Ernesto Arias, PhD, University of Costa Rica, San Jose, Costa Rica.
- Conducted pilot studies on timely sustainable tourism issues titled "Reducing Liability: An Assessment of Agritourism Proctices" (with North Caroline Agromedicine Institute): the "Decumentation and

Agritourism Practices" (with North Carolina Agromedicine Institute); the "Documentation and Comparative Analysis of Tribal Sense of Place for North Carolina Woodland Indian Tribes" (with Department of Merchandising and Interior Design), and "Impacts of Climate on Recreation and Tourism Businesses in Beaufort, North Carolina" (with the Atmospheric Science faculty, Department of Geography).

- Conducted research for the United Nations-World Tourism Organization on the topic of "Crisis Communications in Tourism".
- Provided assistance to the *Blue/Green Sustainable Tourism Initiative* serving the Outer Banks regarding the
 establishment of a "green" brand including retrofitting rental properties and assessing consumer recycling
 behaviors.
- Graduate assistants at the center have developed a National Traveler Care Code in partnership with MilesMedia, Inc., and are conducting research on film-induced tourism, impacts of oil-related disasters on tourism businesses, degree of return-on-investment of sustainable tourism actions, renewable energy strategies at resort properties, and attitudes of state policy makers to sustainable practices in tourism.
- Director was recently named a member of the World Meteorological Organization's Commission for Climatology Open Panel of Experts on Climate Information for Adaptation and Risk Management.

Center for Health Disparities Research (CHDR)

The Center for Health Disparities Research is vital to the mission of ECU. Its basic goals are to determine and eliminate the causes of persistent disparities in health – unacceptable inequalities between non-whites and whites, as well as the regional disparity between eastern North Carolina and the rest of the state. These health differences not only contribute to premature disease and death, but also to higher health care costs near the end of life. It is critical for North Carolina to understand and address these problems in eastern North Carolina. The center will leverage

inter-disciplinary faculty expertise and external grant support to address problems essential to the health, well-being and economic prosperity of the eastern region. On the basis of its excellence, it will serve as a model for regional research and engagement.

This year, the health disparities center has focused on building its infrastructure, establishing priorities and developing applications for research. We have:

- Successfully recruited a new director, Dr. Hope Landrine, an accomplished health disparities researcher and experienced administrator.
- Begun to develop an organizational structure for the center, including core functional areas and their
 respective leadership.
- Begun recruiting staff, including administrative support staff and research assistants.
- Established priority areas for its research including disparities in cancer, cardiovascular disease and obesity/diabetes.
- Established a pilot grant funding program to facilitate collecting data for subsequent grant applications.
- Continued implementation of Dr. Lisa Campbell's PROCARE prostate cancer project to provide training in a health disparities workshop for Duke health policy fellows.
- Involved in over 50 community health education activities ranging across 22 counties in eastern and central NC.
- Received \$400,000 to expand delivery of integrated chronic disease management in qualified health centers of Hertford and Lenoir Counties.

North Carolina Agromedicine Institute (NCAI)

The NCAI, chartered by the UNC Board of Governors, is an inter-institutional partnership among ECU, NC Agricultural and Technical State University and North Carolina State University. NCAI supports faculty, student and community partner activities addressing the agricultural occupational health and safety needs of North Carolina's farming, fishing and forestry communities through research, education/outreach and prevention/intervention. Agriculture consistently ranks among the top three most hazardous occupations in the United States. Goals for 2009-10 included diversifying funding, continuing development of the AgriSafe-NC Program, increasing visibility of the NCAI among the state's agricultural communities and expanding the research faculty membership in the NCAI. NCAI accomplishments in 2009-10 include:

- Successfully completed AgriSafe-NC project funding from NC Rural Center, providing health screenings and health and safety education to more than 1,450 farmers, non-migrant farm workers, and their dependents. Approximately 64% of these individuals were uninsured. Completed first year of project funding from the NC Tobacco Trust Fund Commission to continue the AgriSafe-NC program and to start its companion program, Certified Safe Farm.
- Received approval for MPH course: Fundamentals in Agriculture to be taught Fall 2010.
- Co-hosted the annual National Institute for Farm Safety meeting in Wilmington, NC June 27-July 1, 2010.
- Completed first Agricultural Medicine: Occupational and Environmental Health for Rural Health Professionals training program held November 30-December 4, 2009, in collaboration with Iowa's Center for Occupational Safety and Health (I-CASH).
- Grants awarded:
 - Lazy O Farm Children's Health and Safety in Agritourism Project, funded by National Children's Center for Rural and Agricultural Health and Safety.

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 Risk Mitigation Measures, funded by the NC Tobacco Trust Fund Commission. The project will assist 2200 farms across the state in complying with mandates from the U.S. Environmental Protection Agency governing use of soil fumigants in production agriculture.

The Institute for Coastal Science and Policy (ICSP)

ICSP initiates, promotes, and coordinates interdisciplinary research on all aspects of estuarine, coastal, and shallow marine environments, with a goal of enhancing the 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. ICSP is home to ECU's largest PhD program, the PhD program in Coastal Resources Management as well as the ECU Office of Diving and Water Safety which provides research and instructional support in undersea diving and manages ECU's research vessel 'fleet.' ICSP accomplishments over the 2009-10 year include:

- Welcomed a total of six new jointly appointed or shared faculty. At the beginning of the academic year Alex Manda and Ryan Mulligan joined ICSP and the Department of Geological Sciences, and Rick Miller joined in the spring. He is also jointly appointed with geological sciences. Tracy Van Holt joined ICSP and the Department of Geography. The Department of Recreation and Leisure Studies (RLS) and ICSP welcome David Loomis to ECU in a joint position, and we are pleased that Hans Vogelsong of RLS has been appointed as the new director of the Coastal Resources Management PhD Program.
- ICSP researchers have undertaken projects across the globe this year, from sites as far west as New Zealand
 and Malaysia, north to Maine and Alaska, and east to the coast of France.
- ICSP investigator David Kimmel was funded to perform research in the Gulf of Mexico related to the Deepwater Horizon oil spill disaster and its aftermath under an NSF RAPID award.

In addition, ICSP's Office of Diving and Water Safety has enjoyed a number of significant accomplishments over the 2009-10 period:

- Improved scientific video capability has been provided, including HD underwater videography.
- Updated SCUBA and re-breather equipment is now available.

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- The R/V Cutting Edge received a new diesel engine with greater capability for offshore and estuarine use.
 - A new research vessel was purchased by the university to provide safer and more flexible support to research in the geological and biological sciences. The R/V Stanley R. Riggs is a 34 foot Munson "PackCat" design, and at 13 feet wide is a much more stable platform for working with large instrument/coring/fishing packages over the side, and includes a bow ramp to accommodate beach landings. Even with its passenger load of over 10 persons, twin inboard/outboard propulsion will move the vessel along at over 25 knots.



From left to right: Stan Riggs, Ann Riggs, Charlie Q. Brown, Steve Ballard, John Rummel, and Deirdre Mageean celebrate the dedication and christening of the Research Vessel Stanley R. Riggs on August 15, 2010. (photo courtesy of Alex Manda)

The CRM PhD program, the only multidisciplinary coastal program of its kind in the nation, emphasizes an interdisciplinary approach to science and coastal policy. The top goals for the past year were to continue a steady rate of graduation by CRM students, maintain enrollment numbers, raise the national

visibility of ECU's role in coastal studies through student research and recognition and to pass and implement a major curriculum review initiated in 2007-08. CRM accomplishments for 2009-10 include:

- Four students received doctorates in the 2009-10 academic year. Their research projects covered a wide variety of coastal and maritime topics.
- Students continued to build national awareness of ECU's strengths in coastal studies through their success with competitive awards including a Knauss Fellowship, multiple NOAA National awards and a NOAA Fellowship.
- The CRM curriculum went through a major revision including the creation and modification of eleven courses and the development of new protocols for comprehensive examinations.
- Nine CRM PhD students were admitted into the program during the 2009 10 academic year.

RENCI@ECU: Center for Coastal System Informatics and Modeling



Dare County officials discuss the Hurricane Felix scenario. The simulated hurricane exercised the local and regional jurisdictions' contingency plans for evacuation in the event of a land-falling hurricane. RENCI@ECU developed the scenario, facilitated the exercise and demonstrated new visualization technology for communicating risk to the public.

The Renaissance Computing Institute Engagement Center at East Carolina University is one of three regional centers of the virtual RENCI organization based at UNC- Chapel Hill. RENCI@ECU researchers work with the RENCI anchor site as well as managers at the federal, state and local level to identify and address critical societal problems, with a focus on coastal hazards in eastern North Carolina. The engagement center supports a multidisciplinary research and outreach program and partnerships with government, educational institutions, non-profits and businesses and the general public. RENCI at ECU's goal is to develop and apply geospatial analysis, computing and visualization to reduce the economic impact and loss of life caused by coastal disasters and improve the lives and livelihoods of North Carolinians. In FY 2009-2010, RENCI@ECU completed its fourth year with strategic goals to: advance geo-visualization methodology, engage with the emergency management community, collaborate with federal, state, local and non-profit agencies and expand major grant seeking activity. In 2009-10,

RENCI@ECU accomplishments included:

- Associated faculty submitted nine grant proposals (6 funded \$343,647; 3 pending \$2.8M).
- Conducted the Hurricane Floyd 10th Anniversary Symposium and hosted 1st Annual NC Hurricane Workshop in collaboration with Center for Natural Hazards Research and NC Division of Emergency Management.
- Designed and facilitated the Dare County 2010 Hurricane Felix exercise.
- Implemented a continuously operating estuarine observing platform in the Albemarle Sound for scientific and operational meteorology users.
- Promoted collaborative interdisciplinary research through the annual Visualization Challenge and support for undergraduate, graduate students and faculty.

UNC Coastal Studies Institute (UNC CSI)



At left, John McCord using the RENCI developed HD RED camera to video record wreck sites with ECU and NOAA team (Summer 2010).

UNC Coastal Studies Institute, in partnership with NC State, UNC Chapel Hill, East Carolina University, UNC Wilmington and Elizabeth City State University, was founded to develop and implement programs that address under-served, non-traditional aspects of coastal and marine sciences using a collaborative, multi-disciplinary, applied, public service approach to its research and education programs. These program foci are

Maritime Heritage (MH), Coastal Processes and Engineering (CPE), Estuarine Ecology and Human Health (E2H2), Public Policy and Coastal Sustainability (PPCS) and Public Education and Outreach (PEO). UNC CSI accomplishments during 2009-10 include:

- With Dr. Billy Edge's leadership, in partnership with NCSU, launched the Coastal Engineering Program, which included leadership on an emergency response trip to Chile and more local response to N'or Ida (the Atlantic storm of Friday, November 13, 2009).
- In partnership with ECU Department of Economics, successfully garnered funds and recruited Dr. Andrew Keeler, who will lead the UNC CSI and ECU Public Policy and Coastal Sustainability program.
- Hosted the Maritime Heritage Forum and ECU Maritime Field School with ECU and NOAA.
- E2H2 Program Head Dr. Mike Piehler received an NSF award to study nearshore processes affecting oyster reefs.
- Successful progress of the UNC CSI campus design process to CD Phase.
- Re-submitted a \$12.785M request to NIST for additional construction funding.
- Participant and supporter in the MCNC Broadband expansion proposal.
- Successfully rescued and re-planted thousands of wetland plants on the campus site.
- Purchased new Ford 600 series truck.
- Business Officer, Marie Magee's successfully completed the ECU Chancellor's Leadership Academy.
- Continued development of education programs in local schools. In addition to 6 local, regional and national awards, First Flight High School's NASA ROV Team, under the leadership of UNC CSI's John McCord, won first place in the international competition.

The Division Supports Key Efforts to Drive Successful and Sustainable Economic Transformation in Our Region and Beyond...

Office of Engagement, Innovation and Economic Development (OEIED)

ECU's Office of Engagement, Innovation and Economic Development (OEIED) is the primary university unit charged with aligning and engaging ECU's resources to

- Foster growth in industry sectors that will bring new jobs and investments to eastern North Carolina and drive successful and sustainable economic transformation; and,
- Provide critically needed resources and direct technical assistance to underserved, limited-resource, limited capacity communities.

To accomplish these goals and fulfill ECU's mission as "a national model for public service and regional transformation," OEIED leverages the expertise and resources of East Carolina University with education, industry, government and community partners to

- Drive innovation and entrepreneurship across campus and throughout the region;
- Create a knowledgeable, skilled and adaptable workforce;
- Start, grow and recruit jobs and new enterprises;

- Train faculty and students for engagement, scholarship and service directly in distressed communities; and
- Create vibrant and livable communities that attract talented graduates and workers.

2009-10 OEIED at a GLANCE

- Established education, research and economic development connections to all 10 colleges.
- Engaged nearly 150 students through assistantships, initiatives, and programs.
- Engaged more than 100 faculty and staff in direct research, education and economic development partnership activities.
- 19 OEIED affiliated faculty, staff and students presented 43 scholarly papers to local, regional and disciplinary audiences about engagement, innovation and economic development.
- Led the implementation of UNC General Administration's Innovate, Collaborate, Accelerate initiative to stimulate commercialization of innovations on campus and throughout the region.
- Hosted Chancellor's Industry Roundtable which yielded collaborations with 4 international corporations
 and catalyzed expansion of the Innovation Design Lab and its programs to meet regional needs.
- Led effort to secure ECU membership in the National Outreach Scholarship Conference (first non-land grant institution granted membership).
- The Entrepreneurial Initiative assisted an ECU faculty spin-out company, Teo Systems, Inc. (co-founded by Dr. Xin-Hua Hu, Department of Physics), which finished in the top ten (out of 108 new companies) in the NC Idea Grant Competition.
- The Center for Survey Research was responsible for much of the data collection that led to the overall findings of a study entitled "North Carolina's Equine Industry," which was commissioned by the NC General Assembly. It determined the industry's economic impact to be \$1.9 billion with jobs numbering 19,183.
- Two unique OEIED projects became finalists in the University Economic Development Association's 2010 Awards of Excellence competition. The projects are: *East Carolina University's Innovation Design Lab: Partnering to Build a New Model of Regional Development* and *North Carolina Equine Industry Study.*

ENGAGEMENT: Connecting ECU Resources and Engaging Them with Industry, Government and Communities

Center for Survey Research staff, 6 graduate assistants, and 6 undergraduate students were active on 9 funded projects during 2009-10. CSR started its own quarterly newsletter, "Survey Says...," in January 2010.

OEIED led the effort through which ECU became the 13th university (and the first non-land grant institution) offered membership in the National Outreach Scholarship Conference (NOSC), a higher education consortium working

collaboratively to build strong university-community partnerships anchored in the rigor of scholarship and designed to help build community capacity. 23 ECU faculty and staff have been accepted to share posters and presentations at the 2010 NOSC conference. 9 faculty and staff presented at the 2009 NOSC conference.

The Engagement and Outreach Scholars Academy (EOSA) and Student EOSA (SEOSA) increase participants' knowledge, motivation, and capacity to secure research funding and conduct scholarly engagement within service learning, partnerships and outreach. Currently, EOSA and SEOSA graduates are conducting 31 projects in 12 North Carolina counties, the state of Maine and Denmark.

On the basis of the UNC Tomorrow planning process, OEIED established the Community Enhancement and Economic Transformation Initiative (CEETI). The overarching goal of CEETI is to proactively target distressed communities in eastern North Carolina with technical assistance, financial and human resources, economic development products and ECU's expertise to help increase competitiveness, build stronger and more vibrant communities, and stimulate economic transformation throughout the region. During 2009 – 2010, CEETI leveraged over \$700,000 that provided direct support to some of our region's most distressed communities. CEETI programs

include the Municipal Management and Innovation (MMI) initiative, Talent Enhancement Demonstration Grants (TEDG) and the ECU Outreach Network.

The Municipal Management and Innovation (MMI) initiative engages university faculty, staff and students on behalf of small, low wealth, limited resource and limited capacity municipalities in eastern North Carolina. The MMI initiative received \$25,000 from the Harold Bate Foundation to support engagement in communities in Jones and Pamlico counties. These and other funds supported overall MMI activities in 6 towns and communities throughout eastern North Carolina.

The Talent Enhancement Demonstration Grants (TEDG) effort is a partnership with the NC Department of Commerce designed to provide technical assistance and financial resources to increase competitiveness and build stronger, more vibrant and more capable communities. NC Commerce invested \$580,000, which allowed 7 eastern communities to engage with ECU for a broad menu of community and economic development products and services.

The ECU Outreach Network is a collaborative of faculty, staff and graduate student assistants who work directly with units of local government and community organizations. The Outreach Network is currently assisting 9 communities in areas that include resource identification, grant writing and training that support increased capacity and sustainable community and economic development initiatives.

As a formal commitment to long-term collaboration between ECU and our partner agencies, organizations and communities, OEIED recently established the "ECU Community Partner" designation for partners who commit to long-term collaboration with ECU.

INNOVATION: Fostering a Culture of Innovation on Campus and Throughout the Region

The Innovators Design Academy (IDA) was launched in 2009 as an intensive 8-week program for ECU faculty, staff and students to create new products and processes for a variety of industries. One product, the Venom Lock, has advanced since the academy to full prototyping; its inventors are pursuing commercialization.

The IDA program was expanded with the **Middle School Innovators Academy**, a 2-week, team-based education workshop for 6th and 7th grade innovators from Hope Middle School in Pitt County and Centennial Campus Middle School in Wake County. Instead of an 8-week program, these middle school students, along with teachers and guidance counselors, identified real world needs, developed innovative product solutions, conducted initial patent searches and market evaluations and took their product ideas into full renderings ready for manufacturing specification in only 9 days. The program culminated with students presenting their product concepts to parents and peers, university leaders and regional economic developers.

The Global Innovation Workshop is a joint OEIED/ECU global classroom initiative in partnership with the University of Shandong, China and Faculdade de Jaguariuna, Brazil. 3 teams of 6 students focused on innovation and the creative thought process. Participants received a Certificate of Accomplishment in the Creative Design Process.

With the assistance of the Entrepreneurial Initiative, Teo Systems, Inc., (co-founded by Dr. Xin-Hua Hu, Department of Physics) finished in the top 10 (out of 108 new companies) in the NC Idea Grant Competition for new NC commercial companies.

The Office of Technology Transfer (OTT) processed 10 Pre-Disclosures, 20 Confidential Disclosure Agreements, 7 Invention Disclosures, 46 Material Transfer Agreements and 1 new licensing agreement. OTT managed 16 active

license agreements including 7 income-producing agreements with licensing income earned of \$293,902.

ECONOMIC DEVELOPMENT: Creating a Knowledgeable, Skilled and Adaptable Workforce While Starting, Growing, and Recruiting Jobs and New Enterprises

Working jointly with local, regional, and state economic developers, OEIED has implemented several Precision Marketing Initiatives designed to develop and support regional industry/university clusters for job and investment creation, including Advanced Learning Technologies (ALT), the Military and Health Care Innovation. Collecting and cataloguing the resources of the university and the region in each of these sectors provides data to develop interactive, internet-based economic development landing pages and other innovative marketing materials.



A Chancellor's Industry Roundtable focused upon Advanced Learning Technologies brought leading government and industry professionals together to describe their changing workforce and innovation needs. An advisory group keeps OEIED and the Creative Technologies and Cybernetics group informed of industry and government needs. Also, several industry collaborations for projects have developed:

- ECU faculty collaborate with Applied Research Associates, Inc., (ARA), an international research and .
 - engineering company, on a variety of projects and function as content experts in developing immersive learning modules in health care and military training.
- ECU students and faculty are evaluating IBM's free serious game "CityOne," a game that helps players . discover how to build a "Smarter Planet" by solving real-world business, environmental and logistical problems in cities and with their industries. OEIED utilizes biofeedback equipment in its Innovation Design Laboratory to supply an even greater depth to the focus group findings.

Small Business and Technology Development Center (SBTDC) staff and students provided 5,100 hours of management counseling to 501 clients and held 23 training events for 340 attendees. Additionally, ECU's SBTDC provided enhanced assistance to mid-sized companies in 3 Tier 1 counties as part of a NC Rural Center Economic Innovation Grant and continued the highly successful ECU MBA/MSA internship program with SBTDC clients as part of the University Economic Stimulus Initiative.

The Sustainable Tourism Outreach's numerous projects addressed a broad range of economic, environmental, and social issues in collaboration with partners that include various divisions in the NC Department of Commerce, NC Department of Environment and Natural Resources, NC Department of Cultural Resources and the NC Department of Transportation.

Infrastructural Enhancements at OEIED

The Center for Survey Research has acquired an Autonomy TeleForm survey system to further support the public opinion and survey research needs of ECU faculty.

OEIED expanded the capabilities of the Innovation Design Lab, in partnership with regional industry and military partners, to include eye tracking, free form modeling, motion capture, environmental laser scanning and virtual reality.

OEIED enhanced the presentation and communication infrastructure of the Willis Building to showcase the engagement, innovation and economic development impacts of ECU faculty, staff and students.



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