

6. Mission Review Suzanne Ortega

Situation: Consistent with the newly adopted “Our Time Our Future” strategic directions plan, President Ross initiated a complete review of all campus mission statements in March of 2013.

Background: UNC campuses must adapt to be more nimble, efficient, and responsive, while remaining true to UNC’s three-part mission of teaching, research and scholarship, and public service. To that end, UNC’s strategic directions plan directs the Board of Governors to examine the assigned missions of its 17 campuses from a holistic perspective to ensure that the programs and resources of all institutions serve the state and its regions in ways that complement each other, maximize resources, and avoid unnecessary duplication.

Assessment: In March of 2013, the President established guidelines and a timeline for mission review and refinement. A complete review of all campus mission statements has been conducted, which includes review by an external consultant. The Committee will be updated on the process and timeline for mission review, as well as the recommendation from President Ross on proposed revisions for consideration by the Board of Governors.

Action: This item is for a vote.



The University of North Carolina

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THOMAS W. ROSS, President

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Constituent Universities
Appalachian State
University

East Carolina
University

Elizabeth City
State University

Fayetteville State
University

North Carolina
Agricultural and
Technical State
University

North Carolina
Central University

North Carolina
State University
at Raleigh

University of
North Carolina
at Asheville

University of
North Carolina
at Chapel Hill

University of
North Carolina
at Charlotte

University of
North Carolina
at Greensboro

University of
North Carolina
at Pembroke

University of
North Carolina
at Wilmington

University of
North Carolina
School of the Arts

Western Carolina
University

Winston-Salem
State University

Constituent High School
North Carolina
School of Science
and Mathematics

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TO: Committee on Educational Planning, Policies, and Programs

FROM: Tom Ross, President

RE: Recommendations regarding UNC Mission Statements

DATE: December 15, 2013

Attached please find the report of Collaborative Brain Trust (CBT) Consultants regarding current mission statements of UNC constituent campuses and proposed changes thereto. I have thoroughly reviewed the report and invited comments from all Chancellors. At this time, I am prepared to endorse the consultant report and advocate for approval of all but two of their recommendations. I propose slight modifications to the consultant recommendations for Fayetteville State University and UNC Wilmington, which I address below.

First, I do not disagree with consultant recommendations regarding the proposed change to the Fayetteville State University mission statement. However, the consultants express some concerns about the new doctoral program that the university wishes to initiate. For that reason, I recommend that the proposed mission change and the establishment of the proposed doctoral degree be considered by the Board of Governors together.

Second, in light of consultant analyses, Chancellor Gary Miller has submitted a revised change to the UNC Wilmington mission statement. (See attachment) I recommend your approval of this revised mission statement, concurrent with submission and approval of a UNC Wilmington Doctor of Nursing Practice degree.

As the consultant report makes clear, mission statements should accurately reflect the program mix a university currently offers, as well as any planned for the near future. However, universities and mission statements are dynamic. As our UNC institutions evolve and change, mission statements can and should be revised accordingly. Thus, if and when any UNC institution wishes to offer additional doctoral degrees, I would propose that the Board of Governors simultaneously consider approval of the new degree and any necessary change in the mission statement implied by addition of that degree. This approach will help ensure that the mission statements of our institutions remain focused and fully accurate.

After my recommendations are considered by the Committee on Educational Planning, Policies, and Programs and before recommendations are presented to the full Board of Governors for approval, any proposed changes to UNC mission statements not already considered and vetted by campuses will be returned to the Chancellors for discussion with key stakeholders. Additional campus feedback will be incorporated into the mission review policy session now planned for the February Board of Governors meeting.

Attachments:
UNC Wilmington revised mission statement
CBT Consultants Report

UNCW MODIFIED, PROPOSED MISSION STATEMENT

The University of North Carolina Wilmington, the state's coastal university, is dedicated to the comprehensive journey of learning through the integration of teaching and mentoring with research and service. Our commitment to the power of ideas and innovation engages students in creative inquiry, critical thinking, thoughtful expression, and responsible citizenship. High-quality academic programs are primarily at the baccalaureate and master's levels and include doctoral programs in marine biology, educational leadership, and nursing practice as well as University of North Carolina inter-institutional degree programs that address state and regional needs and build upon institutional strengths. Substantial research and creative activity, recognized teaching excellence, and collaborative faculty-student scholarship shape a vibrant learning community and foster personal and professional accomplishment. We are committed to diversity and inclusion, affordable access, regional responsiveness, and global perspectives. We enrich the quality of life through scholarly engagement and application in areas such as marine and coastal issues, health, the environment, education, the arts, and the economy.

University of North Carolina

Review of Statements of Mission and proposed Changes in Statements of Mission by Constituent Campuses of the University of North Carolina

Submitted to

UNC President Tom Ross

Prepared by

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November 27, 2013

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I. INTRODUCTION

We present here our evaluation of proposed changes in the Mission Statements of University of North Carolina campuses--both changes that are major as well as those that are minor, and also our review of those proposing no changes. This work was commissioned by President Ross as a step to implement the five year strategic plan, Our Time Our Future, adopted by the Board of Governors in February, 2013. Our findings and recommendations are addressed to University of North Carolina President Tom Ross.

Facts, not daydreams or aspirations, drive our report. This means that we took careful note of the context or environment for American Higher Education, including, of course, North Carolina. In a word the environment is tough. Resources are tight--public investment from the State is down, as it is in most of the states; so also is Federal support, and the prospects for significant increases are low, at least in the near future. Similarly, there are limits as to how high tuition increases can go, and private fund raising, while vital, cannot bankroll core University functions. UNC therefore must strive to be as efficient and economical as possible in the pursuit of its educational mission and be flinty-eyed in approving new programs--especially those that generate costs.

In this regard UNC is blessed in having an excellent strategic plan, Our Time Our Future, as a guide during these difficult times. UNC's approval process for proposed new programs is exceptionally strong; it is fair but tough and professional. In addition there is an equally excellent process in place for reviewing programs with low productivity and ones that merit discontinuance. Finally, James Woodward's 2011 University of North Carolina Program Duplication Study is a superb assessment of unwarranted program duplication within UNC; it is a reassuring study with whose findings we concur.

Review of Mission Statements

Only four UNC campuses proposed major changes to their missions, and these involve inclusion of doctoral study or expansion of doctoral study at Appalachian State University, North Carolina Central University, Fayetteville State University, and The University of North Carolina at Wilmington. These campuses have been required to answer rigorous, penetrating, questions from the consulting team. We also review proposed mission changes that are minor as well as the mission statements of campuses not proposing changes to assure consistency across UNC. We make specific recommendations concerning mission for each UNC constitute campus.

Policy Issues

UNC's core mission, its obligation to the state it has historically served so well, is “to discover, create, transmit, and apply knowledge to address the needs of individuals and society.” We affirm the great value of this mission. This includes not only the vital importance of the doctoral and research programs, but, equally, the value of high quality education at the Baccalaureate and Masters level. We also emphasize the need within UNC—in these challenging fiscal times--that there must be more inter-institutional collaboration and a willingness to harness the rich possibilities of online education. We include recommendations about strengthening UNC’s policy statements on both subjects.

During our investigation we found that one category of doctoral program, the practice doctorate, was often inappropriately lumped together in policy and discussion with research doctorates. Blurring the very real distinction between the two types of doctorates may lead to inappropriate decisions about mission and resource allocation. We include recommendations on this matter.

We have appended the detailed questionnaire that we asked each of the four campuses proposing significant mission change to complete (Appendix II), as well as the campuses’ responses (Appendix III). Also included is the excellent report generated by the American Academy of Sciences regarding UNC’s coastal and marine study resources for we relied on it heavily during our investigation (Appendix IV). We thank the General Administration of UNC for providing us access to key data sources, UNC reports and relevant consultants’ reports and the Chancellors, Provosts and other staff of Appalachian State, Fayetteville State, North Carolina Central and UNC Wilmington for preparing detailed answers to our inquiries and for traveling to Chapel Hill and participating in our hearings on October 17 and 18.

Conclusion

UNC has a great heritage of service to its state, the nation, and the world. We envision an exciting and productive future for this marvelous University. Our analysis, observations, and recommendations are intended to aid in using its resources efficiently and wisely.

II. The Importance of Precise Mission Definition and Mission Differentiation

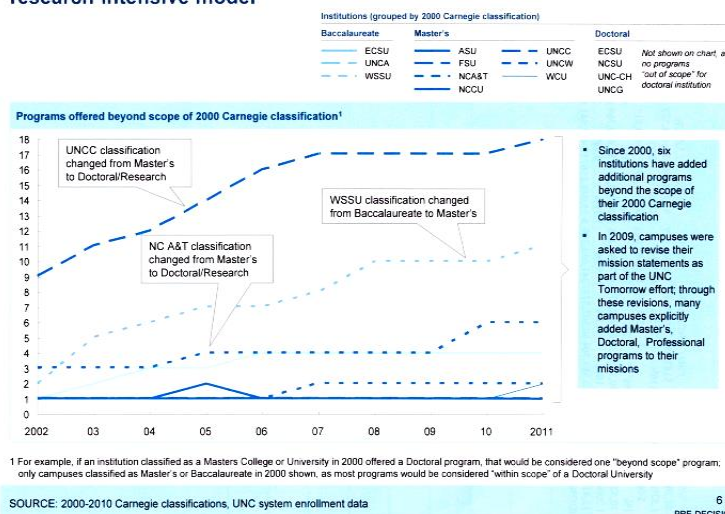
Higher education exists in a dynamic and rapidly changing environment, and this requires that increasing attention be paid to effectively and efficiently deploying scarce resources. Almost instantaneous and inexpensive voice, visual and data communications make possible instruction to students across the state and even world from a single location. Courses at all levels are being taught in this manner and degree programs at all levels are being offered. Expense to the university system is reduced by such offerings as well as expense to students who do not have to relocate.

Researchers in esoteric disciplines may conduct research jointly and author and publish scholarly articles arising from that research without ever physically being in the same location. When physical presence is required to provide instruction or conduct research, sharing of expensive facilities by faculty and sometimes students from multiple institutions is the norm. UNC has an excellent example of this in the North Carolina Research Campus at Kannapolis but many shared facilities exist throughout the system. An everyday reality is the sharing of expensive library databases, volumes and scholarly journals across the UNC System and few know where the computing facility is physically located that processes paperwork, maintains student records or runs sophisticated research software.

The point is that the justification for physically locating educational and research facilities on each campus that provide essentially similar instructional programs or support nearly identical research or service programs is greatly diminished. Unless the marginal cost of locating programs/facilities/services in multiple locations is very small or the economic benefit of physically distributed delivery is significant, systems often find that distribution of programs and services from a single location to researchers and students located on multiple campuses is desirable.

We are not making a case for elimination of campuses or widespread consolidation of facilities. We are making the case that increased heterogeneity of campus missions that allow for sharing faculty and facilities is critical if public higher education resources, whether they originate from state appropriations, student tuition and fees, donor contributions or research funding agencies, are to be used efficiently and effectively in North Carolina.

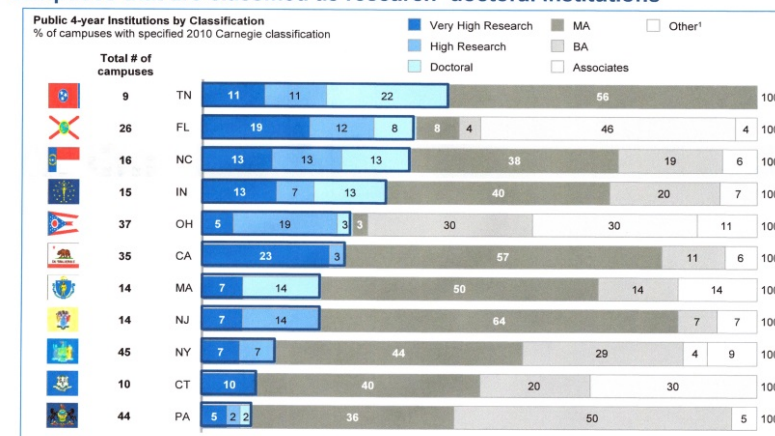
Furthermore, UNC campuses continue to migrate towards the doctoral/research-intensive model



In North Carolina as in the nation the phenomena of “mission creep” has characterized higher education since approximately the time Sputnik orbited. Missions of universities have been growing more homogeneous rather than becoming more heterogeneous. The recent Mackenzie and Company report for UNC, “Developing Alternatives for Active Portfolio Management” (January 15, 2013)¹ illustrated this by tracking the growth of doctoral programs on UNC campuses (See exhibit). The clear inference is that multiple campuses have become more research-intensive, i.e. the system has become more homogeneous with respect to mission over the ten years reviewed by McKinsey.

In examining the degree to which the mission creep in UNC has made it more or less like other systems, McKinsey concludes that UNC now has a larger proportion of its campuses as doctoral institutions than most other similar large public systems². (See exhibit) Only Tennessee and Florida had a higher proportion of its institutions oriented toward granting doctorates than most other similar large public systems. Only Tennessee and Florida had a higher proportion of its institutions that granted doctorates than UNC. McKinsey did not examine whether the high concentration of doctorate-granting institutions was justified by factors peculiar to the State of North Carolina.

Looking across public systems, NC has a relatively high proportion of campuses that are classified as research doctoral institutions



NOTE: Analysis includes all institutions in each state that are classified as public, 4-year institutions
1 Other includes special focus institutions, e.g., UNC-SA

SOURCE: Analysis of Carnegie Foundation 2010 classifications

5
PRE-DECISIONAL

Board of Governors review and approval of precisely drawn mission statements for each campus is the first-line tool to help ensure that missions do not “creep” but change only when there is substantial justification. Even though UNC has impressive and very effective practices of new program approval, low productivity reviews, program discontinuance, etc., it has proven to be very difficult for systems to effectively control mission creep when missions themselves are blurry and unfocused. Imprecisely stated missions unnecessarily encourage efforts on campuses to gain approval of degrees at every level and to occupy the energy, time and effort of faculty, staff and administration; to permit surrounding communities to develop excitement about the prospects of a new effort on its campus that might bring in more students, research or even jobs; and even to develop legislative support for securing the degree for the local community. When such efforts come to the attention of the General Administration they are presented as incremental changes rather than redirection of the mission. Of course, multiple incremental changes effectively change the mission of the institution and approval of one such incremental change represents a “foot in the door” making closing the door to subsequent proposals even more difficult.

¹ Developing Alternatives for Active Portfolio Management, 2013, p. 6

² Developing Alternatives for Active Portfolio Management, 2013, p. 5

Precisely stated missions have explicit terms describing the limits the Board of Governors has established for critical dimensions of the campus. For example, if it is important to the Board to have a campus remain exclusively undergraduate then the words “exclusively undergraduate” or similar words ought to appear in the campus mission statement. If a campus is to focus on liberal arts, the statement ought to say that. And, of course, if a campus is to have a major research mission and the undergraduate, masters, professional and doctoral programs that accompany that mission, the statement should say so. The presence of such explicit words and terms in a mission statement constitutes a “bright line” that is hard to ignore. Incremental program proposals not consistent with the explicit statement in the mission will normally signal to campus personnel that putting large amounts of effort into developing programs inconsistent with the mission is unwise. In the presence of a “bright line” an effort to obtain approval for a program inconsistent with the stated mission proceeds only if it morphs into a targeted effort to change the campus’ mission. Such an effort is far preferable to the incremental proposals that lead to mission creep through the backdoor inasmuch as these efforts permit the Board of Governors to address head-on the question of whether adequate justification exist to refocus a campus’s mission.

In section V of this report we include some recommendations on improving UNC’s online education program. Implementing them would reduce the importance of place in program location and facilitate the assignment to campuses of less duplicative and sharper missions.

III. Review of Missions for those UNC Campuses Proposing No Mission Change or Only Editorial Mission Change.

In the text that follows we examine the mission statements of the 12 campuses that chose either to request what we have judged to be only editorial change in mission or else chose not to request change in their mission. We will be examining the mission statements to determine if they have adequate “bright line” statements to guide future decision about program approval. Where those bright lines are needed but absent, we recommend that changes in their approved missions be considered.

Consideration of the Mission Statements of the 12 Campuses not Proposing Change

Twelve of the campuses of University of North Carolina have elected to either recommend that their missions remain unchanged or to recommend what we deem to be only editorial change in the wording of their missions with the basic mission remaining unchanged. In this section of the report we review the missions of these 12 campuses judging them against the criteria that the mission statement should be stated such that it:

- consistent with the instructional programs approved for it by the Board of Governors of UNC
- consistent with the Variety of Instructional Programs Offered on Campus
- consistent with the level of research activity underway on campus.

The exhibit to the right presents the widely used basic categorizations that the Carnegie Foundation for the Advancement of Teaching³ has developed for describing the dominant types of instructional and research activity underway on each campus. Carnegie classifies institutions into these

categories based on the programs levels of enrollment and research activity that exist on the campus and not on what the approved mission for the campus says. In addition to these basic categories, Carnegie categorizes the 1- Undergraduate Instruction, 2-Graduate Instruction, 3- Enrollment Profile, 4-Undergraduate Profile and 5-Size and Setting of each campus. The classification are a useful tool to use in judging whether the approved mission statement for each campus is consistent with the instructional and research activity on the campus.

The exhibit below lists the 2012 enrollment and degrees approved for each campus by the Board of Governors and the Carnegie Basic Classification. This provides

³ <http://classifications.carnegiefoundation.org/descriptions/basic.php>

additional texture and information to use in judging conformity of the mission statement to the number and level of degrees approved for each campus.

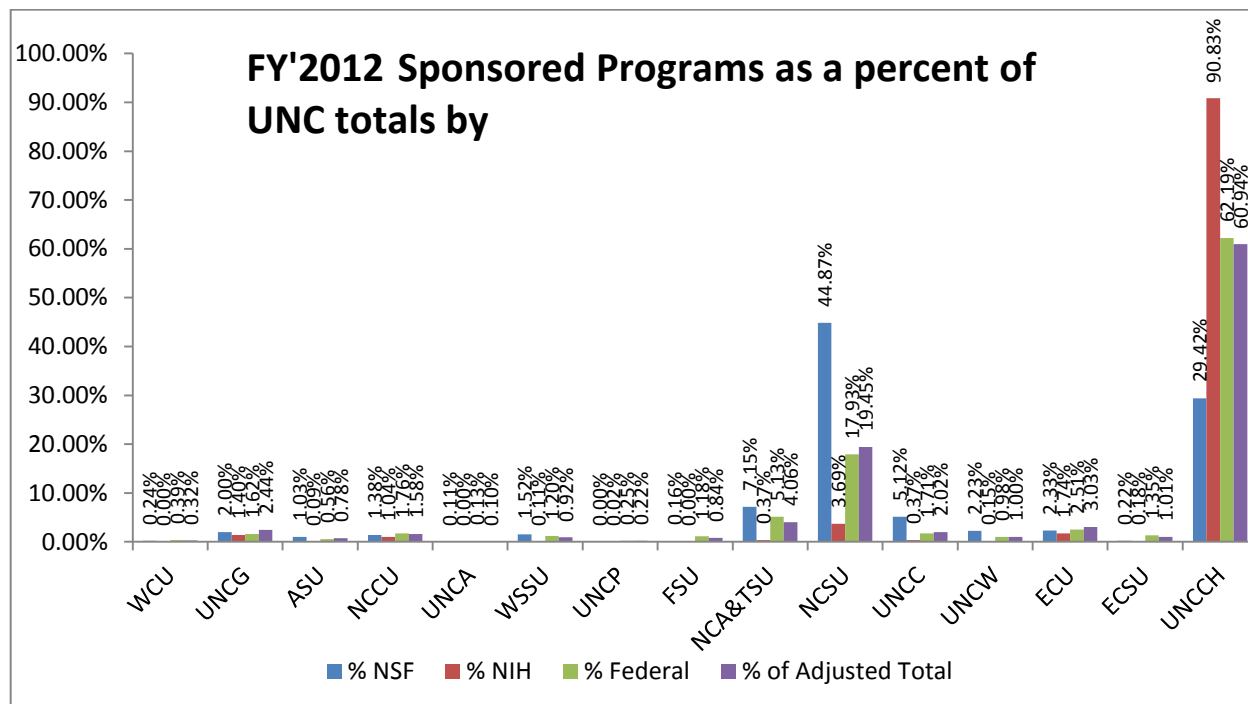
Enrollment and Approved Degrees 2012 & Carnegie Classification⁴

	Undergraduate	Graduate	Total	Graduate students as % of total campus enrollment	Graduate students as % of total UNC graduate enrollment	# Master's Programs	# Doctoral Research Programs	# Professional Doctoral Programs	Carnegie Basic Classification
Appalachian State University	15,712	1,877	17,589	11%	4%	43	1	0	Masters-L
East Carolina University	21,298	5,649	26,947	21%	12%	76	16	5	DRU
Elizabeth City State University	2,760	118	2,878	4%	0.26%	4	0	0	Bac-Diverse
Fayetteville State University	5,287	773	6,060	13%	2%	8	1	0	VH-U
NC A&T State University	8,923	1,713	10,636	16%	4%	30	9	0	DRU
North Carolina Central University	6,658	1,946	8,604	23%	4%	31	1	2	Masters-L
NC State University	24,833	9,507	34,340	28%	21%	162	62	1	RU-VH
UNC Asheville	3,693	58	3,751	2%	0.13%	1	0	0	B-A&S
UNC - Chapel Hill	18,503	10,775	29,278	37%	24%	110	68	7	RUVH
UNC Charlotte	21,179	5,053	26,232	19%	11%	62	20	1	DRU
UNC Greensboro	15,039	3,477	18,516	19%	8%	63	28	1	RU-H
UNC Pembroke	5,504	765	6,269	12%	2%	18	0	0	Masters-M
UNC Wilmington	12,387	1,346	13,733	10%	3%	28	2	0	Masters-L
UNC School of the Arts	760	120	880	14%	0.27%	3	0	0	Spec. Arts
Western Carolina University	7,979	1,629	9,608	17%	4%	32	1	2	Master-L
Winston-Salem State University	5,245	444	5,689	8%	1%	10	0	2	Masters-M
UNC Total	175,760	45,250	221,010		100%	681	209	21	

Finally, one readily available measure of research activity on campus is the revenue from sponsored programs on the campus. The term “research intensity” is a relative term so the exhibit below shows each campuses contributions to UNC totals for NSF, NIH, total Federal and Adjusted Total Funding from all sources. The table to the right lists the actual dollar value of the adjusted total sponsored expenditure of each campus, the General administration and UNC as a whole. Of course, there are many other valid ways to judge research intensity, e.g. refereed article production, citations to published work, monographs produced by university presses and admission to prestigious societies.

Campus	Adjusted Total
WCU	\$3,960,567
UNCG	\$30,187,111
UNC GA	\$15,862,320
ASU	\$9,684,798
NCCU	\$19,565,564
UNCA	\$1,231,233
WSSU	\$11,410,721
UNCP	\$2,772,325
NCSSM	\$282,300
UNCSCA	\$28,500
FSU	\$10,383,704
NCA&TSU	\$50,307,577
NCSU	\$241,053,249
UNCC	\$25,048,856
UNCW	\$12,422,541
ECU	\$37,522,242
ECSU	\$12,463,129
UNCCH	\$755,360,421
UNC	\$1,239,547,157

⁴ Source: Degree Offerings by Level and Campus: UNC GA & Carnegie



Below is an analysis of the mission statement for each of the twelve UNC campuses where no change or only editorial change has been proposed. The analysis relies on the information we describe above as well as the panoply of data and reports provided by UNC GA or made available by the campuses on their web sites.

A. East Carolina University

Current Mission Statement: To serve as a national model for public service and regional transformation by:

- Preparing our students to compete and succeed in the global economy and multicultural society,
- Distinguishing ourselves by the ability to train and prepare leaders,
- Creating a strong, sustainable future for eastern North Carolina through education, research, innovation, investment, and outreach,
- Saving lives, curing diseases, and positively transforming health and health care, and
- Providing cultural enrichment and powerful inspiration as we work to sustain and improve quality of life.

Carnegie Classifications

Undergraduate Instructional Program:	Prof+A&S/HGC: Professions plus arts & sciences, high graduate coexistence
Graduate Instructional Program:	Doc/Prof: Doctoral, professional dominant
Enrollment Profile:	HU: High undergraduate
Undergraduate Profile:	FT4/S/HTI: Full-time four-year, selective, higher transfer-in
Size and Setting:	I4/NR: Large four-year, primarily nonresidential
Basic	DRU: Doctoral/Research Universities

Eastern Carolina University Proposed Mission Statement—September 2013

To be a national model for student success, public service and regional transformation, East Carolina University:

- *Uses innovative learning strategies and delivery methods to maximize access;*
- *Prepares students with the knowledge, skills and values to succeed in a global, multicultural society;*
- *Develops tomorrow's leaders to serve and inspire positive change;*
- *Discovers new knowledge and innovations to support a thriving future for eastern North Carolina and beyond;*
- *Transforms health care, promotes wellness, and reduces health disparities; and*
- *Improves quality of life through cultural enrichment, academics, the arts, and athletics.*

We accomplish our mission through education, research, creative activities, and service while being good stewards of the resources entrusted to us.

Analysis: The Proposed Mission Change is essentially editorial. East Carolina University has a mission statement that aptly reflects its role as a doctoral research university with a strong focus on the medical professions. Its twenty-one research doctoral and professional doctoral programs are a significant part of its graduate activities. It serves its region and the state with its large undergraduate programs and selective admissions.

Recommendation: We recommend acceptance of the revised mission statement.

B. Elizabeth City State University

Current Mission Statement: Elizabeth City State University, a constituent institution of the University of North Carolina, offers baccalaureate, graduate, and professional programs for a diverse student body. The institution's rich heritage provides a firm foundation for its educational endeavors, as well as its role in serving the needs and aspirations of individuals and society.

Through teaching, research, and community engagement, Elizabeth City State University provides a student-centered environment, delivered in a manner that enhances student learning, while preparing its graduates for leadership roles and lifelong learning. The university is also a leader in facilitating sustainable economic growth, while safeguarding the unique culture and natural resources of the region.

Elizabeth City Proposed Mission Statement-- September 2013

Elizabeth City State University, chartered in 1891 for African-American students, is now a constituent institution of The University of North Carolina offering baccalaureate, graduate, and professional degrees for a diverse student body. The institutions rich heritage and its current multicultural focus provide a firm foundation for its educational goals. Through teaching, research, and community engagement, the university provides a student-centered environment focused on career development, while preparing graduates for leadership and lifelong learning. Elizabeth City State University is a leader in facilitating sustainable economic growth, while safeguarding the unique culture and natural resources of the northeastern North Carolina region.

Analysis: The revised mission statement primarily differs from the approved mission statement in largely editorial ways. It does overstate the degrees approved for offering on the campus in that no professional degrees are offered.

Recommendation #1: We recommend that Elizabeth City State University's proposed mission statement be adopted with the words in the second sentence of that proposed mission statement "baccalaureate, graduate, and professional degrees" replaced by the words "baccalaureate and master's degrees in both academic and professional schools". This recommendation restricts Elizabeth City's array of degree offerings to bachelor's and master's degrees consistent with the set of degrees approved by the Board of Governors. We note that the existing mission statement does not specify the types of degrees that the institution is authorized to offer and we would have recommended language incorporating "Bachelors and Masters Degrees" in the University mission statement had the University not recommended to change its current mission.

Carnegie Classification

Classification

Undergraduate
Instructional
Program:

Graduate
Instructional
Program:

Enrollment
Profile:

Undergraduate
Profile:

Size and Setting:

Basic

This institution participated in the following elective classification

Community
Engagement

Category

Bal/SGC: Balanced arts &
sciences/professions, some graduate
coexistence

Postbac-A&S/Ed:
Postbaccalaureate with
arts & sciences (education
dominant)

VHU: Very high undergraduate

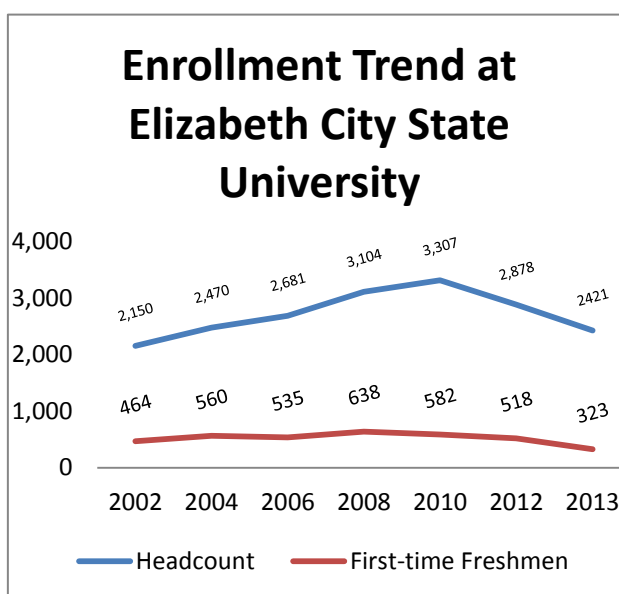
FT4/I: Full-time four-year, inclusive

S4/HR: Small four-year, highly
residential

Bac/Diverse: Baccalaureate Colleges-
Diverse Fields

Curricular Engagement and Outreach
and Partnerships

Further Analysis: Elizabeth City State University is in a difficult situation as its enrollment, particularly of new freshmen has fallen since 2008 by 49%. The decline from fall 2012 to fall 2013 alone was 38.7%. This decrease in entering freshmen has caused total headcount enrollment to decline by 22% since its peak in 2010, with a 15.8% decline during the past 12 months. Apart from UNC School of the Arts, Elizabeth City's enrollment is the lowest of any campus in the system and, unless offset by larger freshmen, transfer or graduate classes in the future, will rapidly decline as the three most recently admitted smaller freshmen cohorts move through the system. Elizabeth City is a university with significant enrollment decline.



Elizabeth City is to be congratulated for its relatively high graduation rate for black students among HBCU's. According to the January 5, 2012 issue of the Journal of Blacks in Higher Education it ranks 8th in the nation among HBCU's for six-year graduation rates. This relative high graduation rate occurs even though the SAT scores of its students rank the lowest of all the UNC campuses at an average SAT of 856. Curiously for a school with a relatively high graduation rate, in 2012 it enrolled only 23.5% of the students which it admitted. Normally a higher promise of graduation success than most HBCU's would result in a high enrollment rate of admitted students.

Elizabeth City State University's eleven county surrounding area⁵ is sparsely populated, containing only 2.2% of North Carolina's total population. While this area has a small population base, its growth over the last decade of 14.5% exceeded the state's population growth of 12.5%. The region's unemployment rate in recent months has averaged about one percentage point greater than the statewide rate and the region's per capita income of \$21,271 is marginally greater than the statewide average of \$21,188⁶. It has only one competing public institution nearby and that is the College of the Albemarle, also located in Elizabeth City. Unlike Elizabeth City

Graduation Rates of Black Students at Historically Black Colleges and Universities
(Ranked by the Highest Graduation Rate)

Black Student Graduation Rate, 2011		Black Student Graduation Rate, 2011	
Institution		Institution	
Spelman College	79%	Fort Valley State Univ.	33%
Howard University	64	Livingstone College	33
Morehouse College	61	Norfolk State Univ.	33
Hampton University	54	St. Augustine's College	33
Clafin University	48	Alabama A&M Univ.	32
Tuskegee University	46	Stillman College	32
Albany State Univ.	45	Bowie State Univ.	31
Elizabeth City St. Univ.	45	Shaw University	31
N. Carolina Central	45	Miss. Valley State Univ.	30
Clark Atlanta Univ.	44	Grambling State Univ.	30
Jackson State Univ.	42	Lane College	29
Virginia State Univ.	42	Southern University	29
S. Carolina State Univ.	41	Benedict College	28
Alcorn State Univ.	40	Paine College	28
Johnson C. Smith Univ.	39	Univ. of Ark.-Pine Bluff	27
N.C. A&T State Univ.	39	Central State Univ.	26
Tennessee State Univ.	38	Kentucky State Univ.	25
Delaware State Univ.	37	Alabama State Univ.	24
St. Paul's College	37	LeMoyne-Owen College	21
Winston-Salem State	37	Cheyney University	20
Fayetteville State Univ.	36	Virginia Union Univ.	20
Lincoln Univ. (Penn.)	36	Lincoln Univ. (Missouri)	17
Bethune-Cookman	35	Coppin State Univ.	16
Prairie View A&M	35	Rust College	16
Florida A&M Univ.	35	Miles College	16
Savannah State Univ.	35	Texas Southern Univ.	11
Univ. of Md. E. Shore	35	Univ. of Dist. of Col.	10
Morgan State Univ.	34		

Note: To avoid fluctuations from year to year, the graduation rate data listed here are four-year averages for the year noted and the three previous years.
Source of statistics: National Collegiate Athletic Association.
Chart © The Journal of Blacks in Higher Education.

State University its curricular enrollment has been roughly steady; 2,949 in fall 2008 to 2987 in

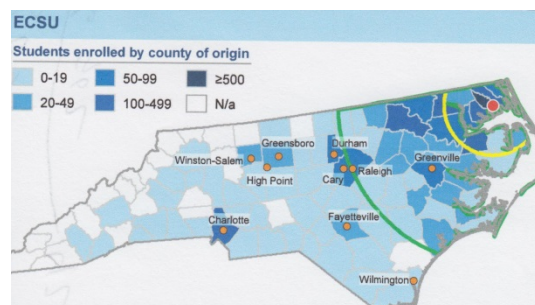
⁵ Camden, Currituck, Bertie, Chowan, Dare, Gates, Hertford, Pasquotank, Perquimans, Tyrrell and Washington counties.

⁶ <http://www.indexmundi.com/facts/united-states/quick-facts/north-carolina/income-per-capita#table>

2011.⁷

Clearly, it is important to the prosperity of this region of North Carolina that the enrollment decline at Elizabeth City State University be reversed. With the information available to us we cannot fully diagnose the reasons for the enrollment decline at Elizabeth City. The rehearsal of the demographic and economic facts of the region and the enrollment at the local community college suggest that, while the economics of the region are far from robust, the problem is likely to be found within Elizabeth City State University.

Given the small population base of the University's region, enrollment growth for the university is most likely to occur if it can increase its attractiveness to students from other regions of North Carolina. The Mackenzie Active Portfolio Management study developed a geospatial analysis of student enrollment from UNC's 2011 student data file. That analysis found that 50% of Elizabeth City's enrollment (the yellow boundary on the attached) was drawn from what is essentially the eleven county area surrounding the university⁸. Given that over 97% of North Carolina's population lies outside their 50% boundary, enrollment growth is more likely if the university can increase its attractiveness to students throughout the state.



Elizabeth City's small enrollment is concentrated in a small number of majors with over 75% of it is concentrated in seven two digit CIP codes, major code areas in which course work is offered in most of UNC's other campuses. Given the distribution of UNC's campuses throughout the state there is relatively little reasons for students outside the 11 county regions to travel to Elizabeth City for their undergraduate studies. Areas such as aviation science stand out as this campus has little competition from elsewhere in that area. Perhaps there are other high student and employer demand areas of current ECSU academic strength such as those related to human health, use of natural products in human nutrition, technology based STEM instructional educational innovations or the development and use of unmanned aircraft that might be developed in cooperation with other UNC campuses or the College of Albemarle. We think that a major study of mission is in order for Elizabeth City State University with a focus on identifying unique and potentially high-demand areas of study which would be attractive to students from throughout the State. Such programs with clear career links might also appeal to a larger proportion of students in the eleven county area.

Upper Division Majors (2 digit CIP Level)	# of majors	% of majors
Business, Management, Marketing	235	17.6%
Education	292	21.9%
Social Sciences	74	5.6%
Biology,	128	9.6%
Visual and Performing Arts	76	5.7%
Home Land Security, Law Enforcement	137	10.3%
Public Administration, Social Services Admin.	78	5.9%
nine other programs	312	23.4%
Total Upper Division majors	1332	⁹

Redeploying current faculty staff and facilities to such programs would help reduce the cost of such new high demand programs. Foundations may also be interested in funding these efforts given the demographics of the area. Employers, both private and public (including the military)

⁷ http://www.nccommunitycolleges.edu/Statistical_Reports/collegeYear2011-2012/docs/table1-201103.pdf

⁸ Developing Alternatives for Active Portfolio Management, 2013, p. 11

⁹ Developing Alternatives for Active Portfolio Management, 2013, p. 18

ought also see sufficient business benefit from properly oriented programs to contribute to their funding. Finally, the economic development potential of such programs and the demography of the area may make them candidates for State legislative funding.

Recommendation #2: Elizabeth City State University should undertake a study to discover unique and potentially high-demand areas of study which would be attractive to students from throughout the State and also more attractive to students in the 11 county area. If such areas of study can be identified it should propose a change in its mission statement, if needed, to reflect the statewide role such offerings entail and seek approval of such courses of specialized study. Elizabeth City should also study its recruitment and admissions policies and practices to improve their effectiveness.

C. North Carolina Agricultural and Technical State University

Current Mission Statement: North Carolina Agricultural and Technical State University is a public, high-research-activity, 1890 land-grant university committed to exemplary teaching and learning, scholarly and creative research, and effective engagement and public service. The university offers degrees at the baccalaureate, master's, and doctoral levels and has a commitment to excellence in a comprehensive range of academic disciplines. Our unique legacy and educational philosophy provide students with a broad range of experiences that foster transformation and leadership for a dynamic and global society.

Proposed North Carolina Agricultural and Technical State University Mission Statement---September 2013

North Carolina Agricultural and Technical State University is an 1890 land-grant doctoral research university dedicated to learning, discovery, and community engagement. The University provides a wide range of educational opportunities from bachelor's to doctoral degrees in both traditional and online environments. With an emphasis on preeminence in STEM and a commitment to excellence in all its educational, research, and outreach programs, North Carolina A&T fosters a climate of economic competitiveness that prepares students for the global society.

Analysis: We find the proposed mission statement to differ primarily in editorial language from the current mission statement. Both North Carolina Agricultural and Technical State University's pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend that the proposed mission statement be adopted.

Carnegie Classification

Classification

Category

Undergraduate Instructional Program:

Prof+A&S/SGC:
Professions plus arts &
sciences, some graduate
coexistence

Graduate Instructional Program:

Doc/Prof: Doctoral,
professional dominant

Enrollment Profile:

HU: High undergraduate

Undergraduate Profile:

FT4/I: Full-time four-
year, inclusive

Size and Setting:

M4/R: Medium four-
year, primarily
residential

Basic

DRU: Doctoral/Research
Universities

D. North Carolina State University

Current Mission Statement:

As a research-extensive land-grant university, North Carolina State University is dedicated to excellent teaching, the creation and application of knowledge, and engagement with public and private partners. By uniting our strength in science and technology with a commitment to excellence in a comprehensive range of disciplines, NC State promotes an integrated approach to problem solving that transforms lives and provides leadership for social, economic, and technological development across North Carolina and around the world.

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	Bal/HGC: Balanced arts & sciences/professions, high graduate coexistence
Graduate Instructional Program:	Doc/STEM: Doctoral, STEM dominant
Enrollment Profile:	HU: High undergraduate
Undergraduate Profile:	FT4/MS/LTI: Full-time four-year, more selective, lower transfer-in
Size and Setting:	L4/R: Large four-year, primarily residential
Basic	RU/VH: Research Universities (very high research activity)

This institution participated in the following elective classification

Community Engagement	Curricular Engagement and Outreach and Partnerships
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Analysis: We find the mission statement to reflect the degrees approved for North Carolina State University by the Board of Governors. Both its pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend no change in the mission statement.

E. The University of North Carolina at Asheville

Current Mission Statement: UNC Asheville is distinctive in the UNC system as its designated liberal arts university. Our practice of the liberal arts emphasizes the centrality of learning and discovery through exemplary teaching, innovative scholarship, creative expression, co-curricular activities, undergraduate research, engaged service, and practical experience. Primarily undergraduate, UNC Asheville offers a liberal arts education characterized by high quality faculty-student interaction. We offer this challenging educational experience to all promising students who are committed to liberal learning and personal growth.

Our liberal arts educational approach emphasizes life skills including critical thinking, clear and thoughtful expression, and honest open inquiry. Students undertake concentrated study in one area while simultaneously developing an understanding of the connections among disciplines. We encourage students to clarify, develop and live their own values while respecting the views and beliefs of others. In addition we cultivate an understanding of the dimensions of human diversity while recognizing the common humanity of all. We believe a quality liberal arts education enables our graduates to be lifelong learners and to lead successful, flourishing lives as leaders and contributors to their communities.

At UNC Asheville, we respond to the conditions and concerns of the contemporary world both as individuals and as a university. We incorporate economic, social and environmental sustainability into our institutional practices and curriculum. With a range of associated centers, partnerships, and initiatives, we fulfill our public responsibility to address the needs of our community through a continuum of learning. We develop a commitment to continuing service characterized by an informed, responsible, and creative engagement with the Asheville area, the southern Appalachian region, the state of North Carolina, and a diverse and increasingly connected world.

Analysis: We find the mission statement to reflect reasonably well the degrees approved for UNC Asheville by the Board of Governors. Since most instruction is at the bachelor's level and only one master's degree has been approved for UNC Asheville by the Board of Governors, the mission statement should reflect this mixture of activities. Its statement of its orientation toward the liberal arts is refreshing and accurate. Both its pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend that the mission statement be revised by the addition of a sentence like: "All programs of instruction lead to the bachelor's degree with the exception of the master's degree in Liberal Studies."

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	A&S-F/SGC: Arts & sciences focus, some graduate coexistence
Graduate Instructional Program:	S-Postbac/Other: Single postbaccalaureate (other field)
Enrollment Profile:	VHU: Very high undergraduate
Undergraduate Profile:	FT4/MS/HTI: Full-time four-year, more selective, higher transfer-in
Size and Setting:	M4/R: Medium four-year, primarily residential
Basic	Bac/A&S: Baccalaureate Colleges--Arts & Sciences

F. The University of North Carolina at Chapel Hill

Current Mission Statement: The University of North Carolina at Chapel Hill, the nation's first public university, serves North Carolina, the United States, and the world through teaching, research, and public service. We embrace an unwavering commitment to excellence as one of the world's great research universities.

Our mission is to serve as a center for research, scholarship, and creativity and to teach a diverse community of undergraduate, graduate, and professional students to become the next generation of leaders. Through the efforts of our exceptional faculty and staff, and with generous support from North Carolina's citizens, we invest our knowledge and resources to enhance access to learning and to foster the success and prosperity of each rising generation. We also extend knowledge-based services and other resources of the university to the citizens of North Carolina and their institutions to enhance the quality of life for all people in the State.

With lux, libertas – light and liberty – as its founding principles, the university has charted a bold course of leading change to improve society and to help solve the world's greatest problems.

Analysis: We find the mission statement to reflect the degrees approved for The University of North Carolina Chapel Hill by the Board of Governors. Both its pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend no change in the mission statement.

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	A&S+Prof/HGC: Arts & sciences plus professions, high graduate coexistence
Graduate Instructional Program:	CompDoc/MedVet: Comprehensive doctoral with medical/veterinary
Enrollment Profile:	MU: Majority undergraduate
Undergraduate Profile:	FT4/MS/LTI: Full-time four-year, more selective, lower transfer-in
Size and Setting:	L4/R: Large four-year, primarily residential
Basic	RU/VH: Research Universities (very high research activity)
This institution participated in the following elective classification	
Community Engagement	Curricular Engagement and Outreach and Partnerships

G. The University of North Carolina at Charlotte

Current Mission Statement: UNC Charlotte is North Carolina's urban research university. It leverages its location in the state's largest city to offer internationally competitive programs of research and creative activity, exemplary undergraduate, graduate, and professional programs, and a focused set of community engagement initiatives. UNC Charlotte maintains a particular commitment to addressing the cultural, economic, educational, environmental, health, and social needs of the greater Charlotte region.

In fulfilling this mission, we value:

- Accessible and affordable quality education that equips students with intellectual and professional skills, ethical principles, and an international perspective.
- A strong foundation in liberal arts and opportunities for experiential education to enhance students' personal and professional growth.
- A robust intellectual environment that values social and cultural diversity, free expression, collegiality, integrity, and mutual respect.
- A safe, diverse, team-oriented, ethically responsible, and respectful workplace environment that develops the professional capacities of our faculty and staff.

To achieve a leadership position in higher education, we will:

- Implement our Academic Plan and related administrative plans.
- Rigorously assess our progress using benchmarks appropriate to the goals articulated by our programs and in our plans.
- Serve as faithful stewards of the public and private resources entrusted to us and provide effective and efficient administrative services that exceed the expectations of our diverse constituencies.
- Create meaningful collaborations among university, business, and community leaders to address issues and opportunities of the region.
- Develop an infrastructure that makes learning accessible to those on campus and in our community and supports the scholarly activities of the faculty.
- Pursue opportunities to enhance personal wellness through artistic, athletic, or recreational activities. Operate an attractive, environmentally responsible and sustainable campus integrated with the retail and residential neighborhoods that surround us.

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	Bal/HGC: Balanced arts & sciences/professions, high graduate coexistence
Graduate Instructional Program:	Doc/Prof: Doctoral, professional dominant
Enrollment Profile:	HU: High undergraduate
Undergraduate Profile:	FT4/S/HTI: Full-time four-year, selective, higher transfer-in
Size and Setting:	L4/R: Large four-year, primarily residential
Basic	DRU: Doctoral/Research Universities

This institution participated in the following elective classification

Community Engagement	Curricular Engagement and Outreach and Partnerships
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Analysis: We find the mission statement to reflect the degrees approved for UNC Charlotte by the Board of Governors. Both its pattern of enrollment and its research activities are consistent with its statement of mission. Its location in an economically vibrant city, the largest in the state of North Carolina, and the distance of the University from other UNC research campuses may well foster continue growth of the campus toward the Doctoral/research university Carnegie basic classification in time. The mission statement is broad enough to enable such an evolution.

Recommendation: We recommend no change in the mission statement.

H. The University of North Carolina at Greensboro

Current Mission Statement:

The University of North Carolina at Greensboro will redefine the public research university for the 21st century as an inclusive, collaborative, and responsive institution making a difference in the lives of students and the communities it serves. UNCG is:

- A learner-centered, accessible, and inclusive community fostering intellectual inquiry to prepare students for meaningful lives and engaged citizenship;
- An institution offering classes on campus, off campus, and online for degree-seeking students and life-long learners;
- A research university where collaborative scholarship and creative activity enhance quality of life across the lifespan;
- A source of innovation and leadership meeting social, economic, and environmental challenges in the Piedmont Triad, North Carolina, and beyond; and
- A global university integrating intercultural and international experiences and perspectives into learning, discovery, and service.

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	Bal/HGC: Balanced arts & sciences/professions, high graduate coexistence
Graduate Instructional Program:	CompDoc/NMedVet: Comprehensive doctoral (no medical/veterinary)
Enrollment Profile:	HU: High undergraduate
Undergraduate Profile:	FT4/S/HTI: Full-time four-year, selective, higher transfer-in
Size and Setting:	L4/R: Large four-year, primarily residential
Basic	RU/H: Research Universities (high research activity)

This institution participated in the following elective classification

Community Engagement	Curricular Engagement and Outreach and Partnerships
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Analysis: We find the mission statement to reflect the degrees approved for The University of North Carolina Greensboro by the Board of Governors. Both its pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend no change in the mission statement.

I. The University of North Carolina at Pembroke

Current Mission Statement:

Founded in 1887 as a school for the education of American Indians, The University of North Carolina at Pembroke now serves a distinctly diverse student body and encourages inclusion and appreciation for the values of all people. UNC Pembroke exists to promote excellence in teaching and learning, at the graduate and undergraduate levels, in an environment of free inquiry, interdisciplinary collaboration, and rigorous intellectual standards.

Our diversity and our commitment to personalized teaching uniquely prepare our students for rewarding careers, postgraduate education, leadership roles, and fulfilling lives. We cultivate an international perspective, rooted in our service to and appreciation of our multi-ethnic regional society, which prepares citizens for engagement in global society. Students are encouraged to participate in activities that develop their intellectual curiosity and mold them into responsible stewards of the world.

UNCP faculty and staff are dedicated to active student learning, engaged scholarship, high academic standards, creative activity, and public service. We celebrate our heritage as we enhance the intellectual, cultural, economic, and social life of the region.

Analysis: We find the mission statement, with one exception, to reflect the degrees approved for The University of North Carolina at Pembroke by the Board of Governors. The exception is that the only graduate instruction approved by the Board of Governors for the campus is at the master's level and the current mission statement uses the word "graduate" with no implied limitation on the range of degrees. Both its pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend that the mission statement be modified such that the words in its second sentence "at the graduate and undergraduate levels" are changed to read "at the master's and undergraduate levels". This change will appropriately reflect the level of degrees approved by the Board of Governors.

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	Bal/SGC: Balanced arts & sciences/professions, some graduate coexistence
Graduate Instructional Program:	Postbac-Prof/Ed: Postbaccalaureate professional (education dominant)
Enrollment Profile:	VHU: Very high undergraduate
Undergraduate Profile:	FT4/I: Full-time four-year, inclusive
Size and Setting:	M4/R: Medium four-year, primarily residential
Basic	Master's M: Master's Colleges and Universities (medium programs)
This institution participated in the following elective classification	
Community Engagement	Outreach and Partnerships

J. The University of North Carolina School of the Arts

Current Mission Statement: The University of North Carolina School of the Arts is the State's unique professional school for the performing, visual, and moving image arts, training students at the high school, undergraduate, and graduate levels for professional careers in the arts. As such, UNCSA provides gifted developing artists with the experience, knowledge, and skills needed to excel in their disciplines and in their lives; and serves and enriches the cultural and economic prosperity of the people of North Carolina, the South and the United States.

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	(Special focus institution)
Graduate Instructional Program:	(Special focus institution)
Enrollment Profile:	HU: High undergraduate
Undergraduate Profile:	(Special focus institution)
Size and Setting:	(Special focus institution)
Basic	Spec/Arts: Special Focus Institutions--Schools of art, music, and design

Proposed Mission Statement for the North Carolina School of the Arts--September 2013

The University of North Carolina School of the Arts provides gifted emerging artists with the experience, knowledge, and skills needed to excel in their disciplines and in their lives, and serves and enriches the cultural and economic prosperity of the people of North Carolina and the nation. UNCSA is the state's unique professional school for the performing, visual and moving image arts, training students at the high school, undergraduate and graduate levels for professional careers in the arts.

Analysis: We find the proposed mission statement, with one exception, to reflect the degrees approved for The University of North Carolina School of the Arts by the Board of Governors. The exception is that the only graduate instruction approved by the Board of Governors for the campus is at the master's level and both the current and proposed mission statements uses the word "graduate" with no implied limitation on the range of graduate degrees. Both its pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend that the mission statement be modified such that the words in its final sentence "undergraduate and graduate" be changed to read "at the undergraduate and master's". This change will appropriately reflect the level of degrees approved by the Board of Governors.

K. Western Carolina University

Current Mission Statement: Western Carolina University creates engaged learning opportunities that incorporate research and service through residential, distance education, and international experiences. The university focuses its academic programs, educational outreach, research and creative activities, and cultural opportunities to improve individual lives and enhance economic and community development in the region, state, and nation.

Carnegie Classification

Classification

Category

Undergraduate
Instructional
Program:

Prof+A&S/SGC:
Professions plus arts &
sciences, some graduate
coexistence

Proposed Mission Statement for Western Carolina University---September 2013

Our Mission (who we are):

Western Carolina University creates learning opportunities that incorporate teaching, research, service, and engagement through on campus, off campus, on-line and international experiences. The university focuses its undergraduate and graduate academic programs, educational outreach, research, creative, and cultural activities to sustain and improve individual lives and enhance economic and community development in Western North Carolina and beyond.

Graduate
Instructional
Program:

S-Doc/Ed: Single doctoral
(education)

Enrollment
Profile:

HU: High undergraduate

Undergraduate
Profile:

FT4/S/HTI: Full-time
four-year, selective,
higher transfer-in

Size and Setting:

M4/R: Medium four-year,
primarily residential

Basic

Master's L: Master's
Colleges and Universities
(larger programs)

Our Core Values and Guiding Principles (what guides and inspires us):

- *Excellence, Scholarship, Teaching and Learning*
- *Collaboration with and Respect for our Communities*
- *Free and Open Interchange of Ideas*
- *Responsible Stewardship and Organizational Effectiveness*
- *Organizational and Environmental Sustainability*
- *Cultural Diversity and Equal Opportunity*

This institution participated in the following elective classification

Community
Engagement

Curricular Engagement
and Outreach and
Partnerships

Our Vision Statement (who we want to be):

To be a national model for student learning and engagement that embraces its responsibilities as a regionally engaged university.

Analysis: We find the proposed mission statement, with one exception, to reflect the degrees approved for Western Carolina University by the Board of Governors. The exception is that only three doctoral programs are approved for Western Carolina by the Board of Governors for the campus. The proposed mission statement introduces the term “graduate” with no suggestion of limitation on the range of doctoral degrees subsumed by the mission. Both Western Carolina’s pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend that the mission statement be modified such that the words in its second sentence “~~undergraduate and graduate academic~~ programs” are changed to “undergraduate, masters and three doctoral academic programs”. This change will appropriately reflect the level of degrees approved by the Board of Governors.

L. Winston-Salem State University

Current Mission Statement: Preparing diverse students for success in the 21st Century, Winston-Salem State University offers quality educational programs at the baccalaureate and graduate levels. Students are engaged in active and experiential learning and have access to education through flexible delivery modes. The university is dedicated to the development of students through excellence in teaching, scholarship, and service. As a comprehensive, historically Black constituent institution of the University of North Carolina, Winston-Salem State University contributes to the social, cultural, intellectual, and economic growth of the region, North Carolina and beyond.

Carnegie Classification

Classification	Category
Undergraduate Instructional Program:	Prof+ A&S/SGC: Professions plus arts & sciences, some graduate coexistence
Graduate Instructional Program:	Postbac-A&S/Other: Postbaccalaureate with arts & sciences (other dominant fields)
Enrollment Profile:	VHU: Very high undergraduate
Undergraduate Profile:	FT4/I: Full-time four-year, inclusive
Size and Setting:	M4/R: Medium four-year, primarily residential
Basic	Master's M: Master's Colleges and Universities (medium programs)

Analysis: We find the current mission statement, with one exception, to reflect the degrees approved for Winston-Salem State University it by the Board of Governors. The exception is that only three doctoral programs are approved for Winston-Salem State University by the Board of Governors for the campus. The proposed mission statement introduces the term “graduate” with no suggestion of limitation on the range of doctoral degrees subsumed by the mission. Both Winston-Salem State University’s pattern of enrollment and its research activities are consistent with its statement of mission.

Recommendation: We recommend that the mission statement be modified such that the words in its first sentence “undergraduate and graduate programs” are changed to read “undergraduate, masters and three doctoral programs”. This change will appropriately reflect the level of degrees approved by the Board of Governors. Alternately, the change might be to “undergraduate, masters and a limited number of professional doctorates if the Board wishes to include the possibility of some future expansion of the number of doctoral programs at Winston Salem State University.

IV. Review of Missions for those Four UNC Campuses Proposing Significant Change in Mission

A. Appalachian State University

Current Mission Statement:

Established in 1899 as Watauga Academy, Appalachian State University has evolved into a preeminent university located in a unique, rural mountain environment. As a member of the University of North Carolina, Appalachian's fundamental mission is to discover, create, transmit, and apply knowledge to address the needs of individuals and society. This mission is achieved by providing undergraduate students a rigorous liberal education that emphasizes transferable skills and preparation for professional careers; offering graduate students distinctively relevant programs; maintaining a faculty whose members serve as excellent teachers and scholarly mentors for their students and who produce high levels of scholarship and creative activities.

Appalachian recognizes that the success of the university depends upon the achievement and cooperation of a diverse community of students, faculty, and staff and strives to implement policies and allocate resources accordingly. We accept our responsibility to be actively involved in addressing the educational, economic, cultural, and societal needs of the changing region, state, nation and world. As a publicly funded institution, Appalachian is committed to accomplishing its initiatives through efficient and effective resource utilization.

Carnegie Classification:

Level	4-year or above
Control	Public
Student Population	16,968
Classification	Category
Undergraduate Instructional Program:	Prof+A&S/SGC: Professions plus arts & sciences, some graduate coexistence
Graduate Instructional Program:	S-Doc/Ed: Single doctoral (education)
Enrollment Profile:	VHU: Very high undergraduate
Undergraduate Profile:	FT4/MS/HTI: Full-time four-year, more selective, higher transfer-in
Size and Setting:	L4/R: Large four-year, primarily residential
Basic	Master's L: Master's Colleges and Universities (larger programs)
This institution participated in the following elective classification	
Community Engagement	Curricular Engagement and Outreach and Partnerships

Appalachian State University Proposed Mission Statement---September 2013

Appalachian State University prepares students to lead purposeful lives as engaged global citizens who understand their responsibilities in creating a sustainable future for all.

Our location in the distinctive Appalachian mountain town of Boone, North Carolina, profoundly shapes who we are. As a constituent institution of the University of North Carolina, we fulfill our core academic missions of teaching, scholarship, and service in ways that honor our geography and heritage.

We bring people together in inspiring ways. The transformational Appalachian experience develops individuals who are eager to acquire and create knowledge, to grow holistically, to act with passion and determination, to embrace diversity and difference, and to become contributing members of society.

We create rich environments where students can thrive. Our students are educated broadly and are simultaneously equipped with strong disciplinary knowledge. Academic learning occurs in a wide range of undergraduate, selected masters, intermediate, and doctoral programs offered on campus, at off campus sites, and on line. Faculty and students engage in research and scholarship that advance knowledge and address the problems of our region, state, and world through creativity and innovation. Learning takes place within formal and informal instructional settings with dedicated faculty members, in co-curricular programs that enrich classroom experience in interdisciplinary educational formats, and through outreach to the local community and beyond. Appalachian cultivates diverse and vibrant arts that enrich the cultural and intellectual climate of the campus and region. We promote a spirit of inclusion that inspires students, faculty, and staff to form relationships extending well beyond graduation. Our students think critically, communicate effectively, make local to global connections, and understand the responsibilities of community engagement. We embrace our obligation to help create healthy, just, and sustainable societies, by equipping our students to live with knowledge, compassion, dedication, humility, and dignity.

Analysis: The revised mission statement is largely an expanded version of their current mission statement, except for their inclusion of “and doctoral programs offered on campus, at off campus sites and online.” The effect of its proposed mission change in which the words “doctoral programs” is plural, would be to declare Appalachian State to be a doctoral granting institution, not an institution limited to one PhD degree in Educational Leadership.

Appalachian State University distinguishes itself by the high quality and enrollment growth in its undergraduate, Masters and Educational Doctorate programs. The increasing quality of their enrolled students is impressive. They are attracting and graduating an ever increasing number of in-state and out of state students. They have developed a very strong niche and are encouraged to build on their strengths and are further encouraged to continue to emphasize their undergraduate, Masters and Educational Doctorate programs. We find that they would serve UNC and the State

best by focusing their efforts on the current mix of programs rather than adding more doctoral programs into that mix. We note that Appalachian's degree growth plan for the next five years is exclusively at the masters degree level.

Appalachian State is a recent entrant to the delivery of online programs. They would be able to serve many more students if they would deliver a few more of their highest demand programs on line. They have an excellent opportunity to serve many more students using online delivery than they do if they limit their programs to on campus delivery.

By enhancing their online delivery at this time they have the opportunity to use existing programs, both their own and those available at other institutions. Just a few years ago, they would have had to develop all of the courses themselves which is quite expensive. Today with the ever increasing numbers of available, online courses, they can concentrate on the student experience. They should also not limit the courses they utilize from other institution to those already within the UNC System. Indeed, Appalachian State is in a position to assist the UNC System by selecting a few of their strong, online programs and partner with a small number of colleagues to develop a consortia approach to an online degree. This is an approach already being conducted within the system and Appalachian State would be in an excellent position to help lead this effort.

Appalachian State is also well positioned to partner with existing two year colleges to assist their students to transfer to four year colleges or to provide an upper division program utilizing an online delivery approach. They are excellently positioned to help many place bound and nontraditional student gain a Bachelor's degree.

Recommendation #1: We recommend that Appalachian State University's proposed mission state be approved with the phrase "...and Educational Doctorate" replacing the proposed "...and doctoral programs offered on campus, at off campus sites and online." This recommendation restricts Appalachian State's array of degree offerings to bachelors and masters degrees with one exception being the existing Educational Doctorate.

Recommendation #2: Appalachian State University has a strong reputation for quality instruction and a developing capability in the online delivery of programs. We recommend that they increase the enrollment in these programs, making very sure that their quality is as high as their on campus programs.

Recommendation #3: We recommend that Appalachian State University not develop all of their online courses, but instead use high quality online courses within and external to those offered by institutions within the North Carolina University system.

Recommendation #4: We recommend that Appalachian State University increase its partnership with the two-year universities in their area with the specific goal of increasing the numbers of Bachelor's degrees in program areas important to North Carolina.

B. Fayetteville State University

Current Mission Statement: Fayetteville State University

Fayetteville State University is a public comprehensive regional university that promotes the educational, social, cultural, and economic transformation of southeastern North Carolina and beyond. The primary mission of FSU is to provide students with the highest quality learning experiences that will produce global citizens and leaders as change agents for shaping the future of the state. Awarding degrees at the baccalaureate and master's levels, and a doctorate in Educational Leadership, FSU offers programs in teacher education, the arts and sciences, health professions, business and economics, and unique and emerging fields. FSU is an institution of opportunity and diversity. Committed to excellence in teaching, research, scholarship, and service, the university extends its services and programs to the community, including the military, and other educational institutions throughout North Carolina, the nation, and the world.

Level	4-year or above
Control	Public
Student Population	6,283
Classification	Category
Undergraduate Instructional Program:	Bal/SGC: Balanced arts & sciences/professions, some graduate coexistence
Graduate Instructional Program:	S-Doc/Ed: Single doctoral (education)
Enrollment Profile:	VHU: Very high undergraduate
Undergraduate Profile:	MFT4/I: Medium full-time four-year, inclusive
Size and Setting:	M4/R: Medium four-year, primarily residential
Basic	Master's M: Master's Colleges and Universities (medium programs)

Propose revision to Fayetteville State Mission Statement—September 2013

Fayetteville State University (FSU) is a public comprehensive regional university that promotes the educational, social, cultural, and economic transformation of southeastern North Carolina and beyond.

The primary mission of FSU is to provide students with the highest quality learning experiences that will produce global citizens and leaders as change agents for shaping the future of the State. Awarding degrees at the baccalaureate and master's levels, and doctorates in specialized areas, FSU offers programs in teacher education, the arts and sciences, health professions, business and economics, and unique and emerging fields. FSU is an institution of opportunity and diversity. Committed to excellence in teaching, research, scholarship, and service, the university extends its services and programs to the community, including the military, and other educational institutions throughout North Carolina, the nation, and the world.

Analysis: The proposed mission change reflects an increase in the number of doctoral degree programs offered from the current one in educational leadership to “doctorates in specialized areas”. However, in a response to a series of questions related to the proposed change, FSU has clearly indicated an interest in **adding only one doctoral program at this time, a PhD in Entrepreneurship**. The reason for using a broader language to describe the doctoral programs is to streamline the introduction of new programs in the future.

FSU responded to a series of questions ranging from the reason for proposing a change in mission, alignment with the UNC mission, evidence of demand and need for this new program, need for additional resources, impact of new program on existing ones, impact on the quality of instruction, impact on research and technology transfer, service to the state, delivery of instruction to collaboration with other UNC institutions. The institution’s responses were vigorous. The following is a summary of those responses.

Alignment of Mission: The proposed addition of a PhD in Entrepreneurship as part of FSU’s mission is described as being aligned with the UNC mission because it will serve the economic development needs of the region and state. References to the importance of entrepreneurship to the state are scattered throughout “**Our Time Our Future: The UNC Compact with North Carolina**” document. Entrepreneurship is one of the ten regional priorities for business leaders in North Carolina according to this document.

The Program: Unlike the doctoral program in Business Administration with a concentration in Strategy and Entrepreneurship at UNC Chapel Hill, FSU plans to offer a doctorate in Entrepreneurship with a focus on Practice Academics, a category Fayetteville State as having been recently created in the new standards by the AACSB accrediting body. Unfortunately, we do not understand AACSB standards as creating the justification for a “practice academics” doctoral degree for professionally qualified faculty members. The relevant text defining qualifications is from AACSB Standard 15. That text defines the educational requirements for “Scholarly Academics (SA)” and “Practice Academic (PA).” The most relevant clause from that standard is this “*Normally, a doctoral degree emphasizing advanced foundational discipline-based research is appropriate initial academic preparation for SA and PA status . . .*” The AACSB recognizes that some members of accredited school faculty may appropriately teach in accredited schools of business even though they do not hold degrees that make them “Scholarly Academics.” But they have not called on universities to produce PhD’s who do not have research qualifications; the standard says that Scholarly Academics and Practice Academics “normally” should have a doctoral degree emphasizing advanced foundational discipline-based research . . .” We cannot accept Fayetteville State’s AACSB justification for offering a *practice academics* PhD program. Nor do we find justification elsewhere for a *practice* doctorate in entrepreneurial studies.

After a meeting with the FSU Chancellor and provost, taking a closer look at the FSU School of Business and Economics, and further research on doctoral degrees offered at other universities, we recognized an opportunity for UNC System to support one of its HBCU’s that has a strong and progressive leader whose goal is to move FSU to a higher level within the next few years.

We congratulate the FSU School of Business and Economics on its ranking of #63 among SSRN (Social Science Research Network) Top 500 Business Schools. This ranking is based on the number of times that a publication is consulted by readers. FSU is ranked third in North Carolina behind Duke and UNC Chapel Hill and second in the UNC System, and the only HBCU in the nation ranked in the Top 100 accredited programs.

In a 2008-9 AACSB survey of member schools, 16 American universities reported offering an organized doctoral program in entrepreneurship. Ten of those institutions offered entrepreneurship as a concentration/specialization/emphasis. It appears all of these programs are research based. Given the status of the FSU School of Business, its current resources, and additional support from the system, we believe that the institution can develop and deliver a strong research based doctoral degree in entrepreneurship. This school is considered to be the “Crown Jewel” at FSU and the goal is to take it to the next level of success and status with the proposed new program.

FSU is also uniquely located in close proximity to Fort Bragg, a US Army Base in North Carolina. It currently offers entrepreneurship training to returning veterans and their spouses. The university is in talks with military officials about specific programs that will benefit their units as well as FSU and the region. FSU is increasing involvement in the international community, particularly in Asia and Africa. FSU has already received \$1.5M to support the proposed new degree program and is seeking additional funds during the capital campaign from donors, corporations and external granting agencies. In August 2013, FSU was profiled in the USAir Magazine as being “Ahead of the Class” with respect to its program offerings. This is a unique and fertile place for this new PhD program to grow into a national and international program of great consequence.

Resources: FSU reports that no additional resources are needed to deliver the program because of the three highly qualified faculty recently hired who will be dedicated to the doctoral program, one of whom holds an endowed chair. Most PhD programs have larger core faculty groups, especially when the degree is a PhD and not a practice doctorate. While the quality of the new hires is compelling, standards used to measure research PhD programs indicate that *more than three core faculty would be desirable. We think important that UNC provide financial support for additional faculty dedicated to the proposed degree and resources* including fellowship/graduate assistantships for students. This is a unique opportunity to extend doctoral education of practical importance to a campus that has excelled in serving a diverse student body. Modern seminar rooms and computing resources are reported to be sufficient and current library resources are characterized as more than adequate. The university has committed space for doctoral students’ office suites.

Recommendation: We recommend approval of the proposed Fayetteville State University Mission statement if modified to reflect a research based doctorate in entrepreneurship. The third sentence should read, “Awarding degrees at the baccalaureate and master’s levels, and doctorates in Educational Leadership, and Entrepreneurship”. Acceptance of our recommendation will also recognize the unique contribution made by Fayetteville State as a Carnegie basic classification Masters Institution while assisting the university to grow in an area that addresses the economic needs of the region and state.

C. North Carolina Central University--- Current Mission Statement

North Carolina Central University is a comprehensive university offering programs at the baccalaureate and master's levels, and the Juris Doctor degree at the professional level. It is the nation's first public liberal arts institution founded for African-Americans. The university maintains a strong liberal arts tradition and a commitment to academic excellence in a diverse educational and cultural environment. It seeks to encourage intellectual productivity and to enhance the academic and professional skills of its students and faculty.

The mission of the university is to prepare students academically and professionally to become leaders prepared to advance the consciousness of social responsibility in a diverse, global society. The university will serve its traditional clientele of African American students; it will also expand its commitment to meet the educational needs of a student body that is diverse in race and other socioeconomic attributes.

Teaching, supported by research, is the primary focus of the university. As a part of that focus, the university encourages its faculty to pursue intellectual development and rewards effective teaching and research. The university recognizes, however, the mutually reinforcing impact of scholarship and service on effective teaching and learning. North Carolina Central University, therefore, encourages and expects faculty and students to engage in scholarly, creative, and service activities which benefit the community.

Carnegie Classifications: North Carolina Central University

Level	4-year or above
Control	Public
Student Population	8,587
Classification	Category
Undergraduate Instructional Program:	Prof+A&S/SGC: Professions plus arts & sciences, some graduate coexistence
Graduate Instructional Program:	Postbac-Comp: Postbaccalaureate comprehensive
Enrollment Profile:	HU: High undergraduate
Undergraduate Profile:	FT4/I: Full-time four-year, inclusive
Size and Setting:	M4/R: Medium four-year, primarily residential
Basic	Master's L: Master's Colleges and Universities (larger programs)
This institution participated in the following elective classification	
Community Engagement	Curricular Engagement and Outreach and Partnerships

Proposed North Carolina Central University Mission Statement--- September 2013

Historical Statement

North Carolina Central University was founded in 1909 as the National Religious Training School and Chautauqua by Dr. James Edward Shepard. It became the first public liberal arts institution for African Americans in the nation. The University is now a comprehensive institution that offers bachelors, master's, professional, and doctoral degrees to a diverse student population.

Mission

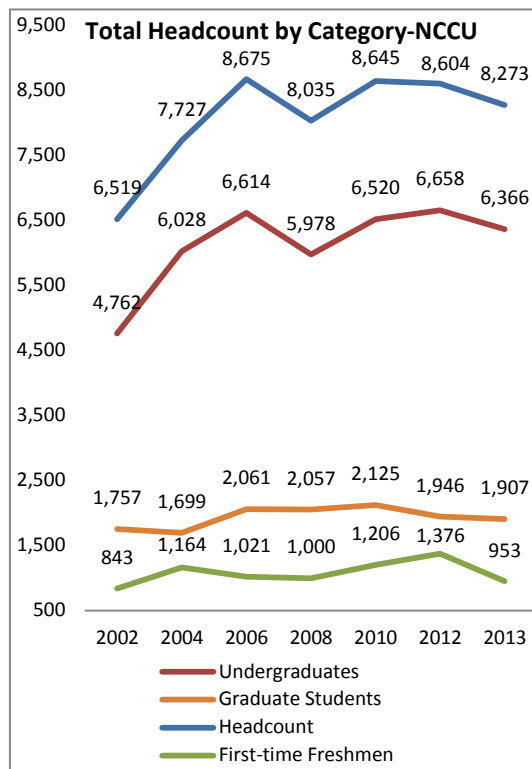
North Carolina Central University, with a strong tradition of teaching, research, and service, prepares students to become global leaders and practitioners who transform communities. Through a nationally recognized law school, highly acclaimed and innovative programs in the visual and performing arts, sciences, business, humanities, and education programs, NCCU students are engaged problem solvers. Located in the Research Triangle, the University advances research in the biotechnological, biomedical, informational, computational, behavioral, social and health sciences. Our students enhance the quality of life of citizens and the economic development of North Carolina, the nation, and the

world.

Analysis:

NCCU has approval of the Board of Governors to offer both the Integrated Biosciences PhD degree and JD degrees. The effect of its proposed mission change in which the words “doctoral degrees” is plural, would be to declare NCCU as a doctoral granting institution, not an institution limited to one PhD degree and one professional doctorate.

In its response to the questionnaire NCCU indicates that if its mission revision is accepted in the next five years it is likely to propose the following programs: Computer Science and Information Systems Blended Degree; Online Master’s Program in Career Counseling, and Master’s Program in Interdisciplinary Studies. The blended computer science and information systems degree is at the master’s level, a joint product of the computer science masters offered by the Mathematics Department and the Information Sciences masters offered by the School of Library and information Sciences. Thus all three degrees are at the master’s level and appear to be within the gambit of the existing mission statement. NCCU has no firm plans to propose offering another doctoral program at this time but, if its mission revision proposal were accepted, it could do so at any time.



Thus the question that remains is whether the proposed change in the mission which would effectively declare NCCU to be a full range doctoral institution is warranted.

We find that NCCU has produced a very supportive community in which each admitted student has an excellent opportunity to thrive and achieve a bachelor’s degree. NCCU is to be congratulated for its relatively high graduation rate for black students among HBCU’s. According to the January 5, 2012 issue of the Journal of Blacks in Higher Education, NCCU has a 45% six-year graduation rate for black students and is ranked 8th in the nation among HBCU’s. Given its students relatively low combined SAT average score in the 850s and its low funding base, the university does a remarkable in graduating its students. We attribute that success to NCCU’s supportive atmosphere and intrusive advising programs.

NCCU’s enrollment is roughly 23% at the graduate and professional level with the balance at the undergraduate level. Its graduate and professional enrollment headcount has fallen moderately since 2006 due largely to a reduction in professional enrollment that was partially offset by an increase in master’s level enrollment. Total fall headcount declined by a modest

3.85% from fall 2012 to fall 2013, graduate and professional enrollment fell by 2% but there was a shocking reduction of 32.37% in first-time freshmen headcount during the same period.

Within UNC only Elizabeth City State University's first-time freshman reduction of 38.71% was greater than NCCU's.

NCCU's first-time freshman enrollment is now lower than it was in 2004.

Both Elizabeth City and NCCU raised their admission levels for new freshmen to a minimum SAT of 800/2.5 GPA in the fall of 2012 per UNC directive. This undoubtedly negatively affected fall freshman enrollment. In addition, the changes in the federal plus Parent loan policy also made it more difficult for some families to send their children to NCCU in Fall 2012. Negative effects on enrollment at HBCUs throughout the nation have been attributed to the more restrictive plus Parent loan program.

Nonetheless, if fall 2013's decline in new freshmen enrollment is not reversed quickly or transfer enrollment increased, total headcount enrollment for NCCU will begin to fall rapidly. NCCU's primary concern is appropriately on stabilizing undergraduate enrollment and not on adding doctoral programs.

NCCU has had modest success with sponsored program funding of over \$19.5 million in 2012. This represents about 1.7% of UNC's total sponsored program funding. It accounted for 1.38% of UNC's NSF funding and 1.04% of its NIH funding. These are small but meaningful proportions of the total but clearly not sufficient in volume to indicate that NCCU has approached the margin of being classified as a research university. NCCU's answers to the questionnaire indicated that the recent addition of the Integrated BioSciences degree would, in time, enable sponsored funding to grow and it is appropriate to provide some time to see if that promise is realized. Given the current four-course-per-semester teaching load, faculty find it very difficult to make time to participate in seeking externally sponsored research funding.

	Sponsored Funds
Campus	Adjusted Total
UNC	\$1,239,547,157
UNCCH	\$755,360,421
NCSU	\$241,053,249
NCA&TSU	\$50,307,577
ECU	\$37,522,242
UNCG	\$30,187,111
UNCC	\$25,048,856
NCCU	\$19,565,564
UNC GA	\$15,862,320
ECSU	\$12,463,129
UNCW	\$12,422,541
WSSU	\$11,410,721
FSU	\$10,383,704
ASU	\$9,684,798
WCU	\$3,960,567
UNCP	\$2,772,325
UNCA	\$1,231,233
NCSSM	\$282,300
UNCSA	\$28,500

Thus given the imperative that NCCU focus immediate efforts on stabilizing enrollment, the current small amounts of sponsored research funding and the heavy faculty teaching loads we cannot recommend that NCCU be given wording in its mission that would permit and encourage it to offer additional doctoral degrees. During our discussion we learned there had been a

misunderstanding by NCCU about the proposed change in the NCCU mission. NCCU's objective in its proposed change was to be sure that their doctoral program in Integrative Biosciences that was approved two years ago would be part of its mission statement; not to enable it to seek the addition of another PhD.

We were very impressed with the measures that the new chancellor and her provost have taken to stabilize enrollment by increasing freshman enrollment, improving retention and making the institution more attractive to transfer students. Success in their efforts to realize acquisition of a greater percentage of sponsored funds in the form of indirect cost return would provide funds that could be used to better support faculty research efforts. Improved general management of the institution is in the offing.

Recommendation:

NCCU's proposed mission statement should be adopted provided that the following sentence replaces the sentence that is now at the end of its first paragraph: "The University is now a masters comprehensive institution that offers bachelors and masters degrees, a Juris Doctor and a PhD in Integrated Biosciences to a diverse population. This substitution will clearly signal that the mission of NCCU is primarily the offering of undergraduate, masters and law degrees while acknowledging its authorization to offer a single research doctoral degree."

D. University of North Carolina at Wilmington

Current Mission Statement: The University of North Carolina Wilmington, the state's coastal university, is dedicated to learning through the integration of teaching and mentoring with research and service. Our powerful academic experience stimulates creative inquiry, critical thinking, thoughtful expression and responsible citizenship in an array of high-quality programs at the baccalaureate and master's levels, and in our doctoral programs in marine biology and educational leadership. Substantial research activity, combined with our hallmark teaching excellence and moderate size, advances distinctive student involvement in faculty scholarship. We are committed to diversity and inclusion, affordable access, global perspectives, and enriching the quality of life through scholarly community engagement in such areas as health, education, the economy, the environment, marine and coastal issues, and the arts.

PROPOSED University of North Carolina at Wilmington MISSION STATEMENT--- September 2013

The University of North Carolina Wilmington, the state's coastal university, is dedicated to the comprehensive journey of learning through **Carnegie Classifications: University of North Carolina at Wilmington**

the integration of teaching and mentoring

with research and service. Our commitment to the power of ideas and innovation engages students in creative inquiry, critical thinking, thoughtful expression, and responsible citizenship in high-quality baccalaureate, master's, and select doctoral

programs. Substantial research and creative activity, recognized teaching excellence, and collaborative faculty-student scholarship build a vibrant learning community and foster personal and professional accomplishment. We are committed to diversity and inclusion, affordable access, regional responsiveness, and global perspectives. We enrich the quality of life through scholarly

engagement and application in areas such as marine and coastal issues, health, the environment,

Level	4-year or above
Control	Public
Student Population	12,924
Classification	Category
Undergraduate Instructional Program:	Bal/SGC: Balanced arts & sciences/professions, some graduate coexistence
Graduate Instructional Program:	S-Doc/Other: Single doctoral (other field)
Enrollment Profile:	VHU: Very high undergraduate
Undergraduate Profile:	FT4/MS/HTI: Full-time four-year, more selective, higher transfer-in
Size and Setting:	L4/R: Large four-year, primarily residential
Basic	Master's L: Master's Colleges and Universities (larger programs)
This institution participated in the following elective classification	
Community Engagement	Curricular Engagement and Outreach and Partnerships

education, the arts, and the economy.

Analysis: We find the proposed mission statement to differ significantly from the current wording that specifies “our doctoral programs in marine biology and educational leadership” to the much broader wording “select doctoral programs.” Currently UNCW offers a Doctor of Education degree in Educational Leadership and a Ph.D. in Marine Biology. If the mission statement is changed, UNCW would proceed with proposals for adding two Ph.D.s in Marine Sciences and Applied and Experimental Psychological Sciences, and a new Doctor of Nursing Practice (DNP).

Of UNCW’s approximately 14,000 enrollment, about ten percent are graduate students (actual figures between 2011-13 vary by a few percent). UNCW is 11th of the 15 campuses which were ranked in percent of graduate students, according to the *Developing Alternatives* report. The campus’s research productivity from grants is small, \$12,422,541, or about 1 % of the UNC total of \$1,239,547,157 according to data provided by UNC GA. The campus submitted a 48-page response to the questions asked by this review. The detailed response is indicative of the interest and planning that lies behind their request for new doctoral degrees.

UNCW is one of several UNC campuses and facilities with a special mission to teach and research in a variety of marine sciences. The marine programs at Wilmington are strong and include significant instructional and research facilities in the faculty, on the campus, and on the new CREST campus. UNCW takes pride in integrating a focus on marine studies across its campus, and enhancing their standing in this field is a major campus goal. With master’s degrees in marine biology and marine science and a Ph.D. in Marine Biology, the campus feels another Ph.D. in Marine Sciences is the path to achieve this leverage within the system and to better position UNCW to increase its research funding, which has declined in recent years.

With a massive investment in marine sciences, UNC’s is concerned about the range and economies of scale of its investment in this area. At the request of the UNC General Administration, the American Association for the Advancement of Science (AAAS) conducted an independent review of UNC’s marine and coastal programs. This report, issued earlier this year, noted the “extraordinarily rich assemblage” of some 26 assets dedicated to the marine environment. This richness included Ph.D. degrees in Marine Sciences at UNC-CH and UNCS, as well as the existing Ph.D. in Marine Biology at UNCW. It also notes the three primary locations on the coast with substantial laboratory and field research facilities. These three included Wilmington, Morehead City-Beaufort, and Manteo. **The AAAS report also noted that the promise of this enormous UNC investment in marine and costal programs had not yielded its full potential because of a lack of coordination and collaboration, and because much of it historically has been ‘largely ‘silosed’ within institutions.’**

The report offered fourteen recommendations to reduce barriers and improve academic collaborations. Instead of more degrees, the AAAS recommended shared degree programs and “a coordinated online or hybrid course curriculum in marine science to leverage the breath of activities offered throughout the State.” The economic picture since 2008 nationally and in North Carolina only underscores the importance of these recommendations. Several of the

recommendations seem particularly relevant to UNCW's request to add a new Ph.D. in the field of Marine Sciences. Among the AAAS recommendations (in abbreviated form) most relevant to UNCW's plan to add another doctoral degree are the following:

- UNC System should provide greater leadership and coordination of UNC System Activities, building on the self-studies and establishing milestones and measurements and reporting of outcomes for all participating units.
- The UNC system should foster stronger and more integrative research collaborations.
- The UNC System should encourage efforts to remove barriers to academic collaboration.
- The UNC System should encourage development of a coordinated online or hybrid course curriculum in marine sciences to leverage the breadth of activities offered throughout the state. These courses could be the component in a common, shared degree program in marine science (at the Master's or Ph.D. level), and would help maximize the use of teaching resources in the State without requiring duplication in hiring.

The AAAS report stresses communication, system-wide leadership and strategic planning, and various ways to make more of the investments that have been made, including better integration with undergraduate activities.

UNCW believes that it must have its own Ph. D. in Coastal and Marine Science to fully participate in what the AAAS described as an "inter-institutional academic degree program in marine science." Their proposed degree seeks to define its difference with an emphasis on an interdisciplinary degree focused "on integrating scientists from various disciplines across college and university boundaries to bring together new inter/trans-disciplinary teams to address the marine science issues." Given the AAAS recommendations and the need for time to fully explore them across campuses and with System leadership, moving forward with a degree of this kind is premature and would undercut the function of the AAAS report.

The proposed Ph.D. in Applied and Experimental Psychological Science seeks to meet a growing workforce demand for psychologists and the popularity of psychology with students. There is little question about either the need or the likelihood of students to enroll. NCS, UNC-CH, and UNC-G offer doctorates in psychology, and these campuses and UNC-C also offer a variety of doctoral degrees in related areas such as health psychology, school psychology, and counseling, public health, and policy. The proposal outlines a wide variety of fields of emphasis, including substance abuse, dementia and aging, correctional and forensic psychology, and developmental disabilities and behavior analysis. These four tracks cover a great deal of territory in "psychology," and would require different tracks in terms of courses, faculty, and research to provide adequate Ph.D. training in that subfield. Very little evidence is presented that the senior faculty, the department's research, or its existing curricular offerings are adequate to offer such a diverse and comprehensive doctoral program. Unquestionably, this would be an expensive program in terms of faculty time and curricular and research demands.

Both Ph. D. proposals in Marine Sciences and Applied and Experimental Psychology argued that they will need no, or few, new resources and thus concluded that the programs will not cost more to run. Costs are not all a matter of needing more classroom space or hiring additional faculty, though in time both programs would probably need to do that, too, if enrollment at the

undergraduate level continues to grow. Every course taught has a cost, as does every assistantship. Faculty members who take on teaching in an expanded graduate program step out of teaching a course at the undergraduate level. Cost calculations by degree need to include the percent of a faculty member's time spent in that program. Supervision of Ph.D. work is labor intensive and is typically recognized with reduced teaching loads. In Carnegie high research and very high research universities the teaching load in non-science disciplines is typically 2-2; in the sciences where there are labs, it is typically 1-1—or less. Supporting teaching assistants with a stipend and tuition remission is also a cost, estimated in UNC to be about \$25,000 per student per year. The designation of a portion of tuition increases for assistantships is an allocation to graduate programs that might otherwise not be necessary, or designated for undergraduates.

The third proposal is for a professional doctoral degree in Nursing Practice. The proposal is driven by the concern that nationally the master's in nursing practice may be phased out in favor of a doctoral in nursing practice. Within UNC campuses, six other campuses have, or are in the process of, approving a Doctor of Nursing Practice. The degree is not considered a research doctorate and is primarily aimed at better training for nursing leadership and supervision of care. At the time of this writing, it is not fully clear that this is the intent of the nursing accreditation agency. There are distinct losses to eliminating the MNP, and UNCW needs to know more precisely what the nursing association intends before acting.

If, as expected, the accrediting agency for colleges of nursing phases out the master's in advanced practice, UNCW's MSN degree, with a current enrollment of 93, would become obsolete. If this is not the direction, UCW might choose to continue the MNP. In any case, they would have no need for both a MNP and a DNP.

UNC should place an all-campus moratorium on all degree additions in all areas of marine sciences until such programs can be evaluated in the context of a comprehensive plan to implement the AAAS recommendations on coordination. This report has clearly identified some major problems in campus coordination and has raised the question of whether the institution's investment in marine sciences is being used in the most productive way. Similarly, many campuses of the UNC system offer a variety of master's and doctoral degrees in psychology. An emphasis on expanding the capacity to admit more students to existing degree programs would be a more productive step than expanding the number of degree programs. The proposal for a Doctor of Nursing Practice is a very different situation reflecting a major national change in nursing education. To preserve the graduate enrollment in nursing at UNCW, Nursing should be allowed either to offer the MNP or the DNP.

Recommendation: UNCW is currently operating within its mission statement of offering “doctoral programs in marine biology and education leadership.” We recommend that the Board change the existing wording to read “doctoral programs in marine biology, educational leadership, and a Doctorate in Nursing Practice.” *(If the nursing accreditation association does not mandate the replacement of the MNP with the DNP, UNCW should not develop the doctoral program.)*

Appendix I: CBT University Consultants UNC Mission Review Hearings October 17-18, 2013

October 17, 2013

9:00 a.m.-12:00 p.m.: Campus Hearing with North Carolina Central University

Campus Attendees: Chancellor Debra (Deb) Saunders-White

Dr. Bernice Duffy Johnson, Interim Provost and Vice Chancellor for
Academic Affairs

1:30 p.m.-4:30 p.m.: Campus Hearing with University of North Carolina Wilmington

Campus Attendees: Chancellor Gary Miller

Dr. Denise Battles, Provost and Vice Chancellor for Academic
Affairs

October 18, 2013

9:00 a.m.-12:00 p.m.: Campus Hearing with Fayetteville State University

Campus Attendees: Chancellor James Anderson

Dr. Jon Young, Provost and Vice Chancellor for Academic Affairs

1:30 p.m.-4:30 p.m. Campus Hearing with Appalachian State University

Campus Attendees: Dr. Lorin Baumhover, Chief of Staff (in place of Chancellor prior
approval granted by Suzanne Ortega)

Dr. Lori Gonzalez, Provost and Vice Chancellor for Academic
Affairs

Dr. Bobby Sharp, Director for Institutional Research, Assessment,
and Planning.

All meetings will take place at the Center for School Leadership Development (140 Friday
Center Drive, Chapel Hill, NC) in Seminar Room 119.

Appendix II: CBT University Consultants Questionnaire for the Campuses Proposing Significant Mission Change

Answers to these questions must be returned no later than October 11 to the UNC GA office as a Word attachment.

1. Explain why your campus is proposing to alter its mission? What are the benefits to stakeholders?
2. Is the proposed mission aligned with the University of North Carolina System Mission? Explain with some precision how it fits within that mission.
3. Does the proposed mission change advance the five year strategic plan, Our Time Our Future, adopted by the Board of Governors in February, 2013? In what ways?
 - a. Which goals are furthered by the proposed mission revision? How?
 - b. Which strategies and action steps are enhanced by the mission alteration? How?
4. If the mission change you propose is granted, what new degree programs, and at what levels, might your campus propose **within the next five years?**
Within the next ten years?
 - a. What is the evidence that an adequate demand exists for the graduates, research, or services that the new programs or activities might produce?
 - b. What is the evidence of the economic/social need for the programs that might result from altering your campus's mission?
 - c. Provide evidence that there are sufficient numbers of qualified students who wish to enroll in new programs who are not being served adequately in other programs in the UNC system.
5. Does your campus have the resources required to carry out the proposed mission and the new degrees that might be justified under that new mission?
 - a. Faculty: Provide data on faculty already employed who have the requisite education and credentials needed to carry out the enhanced

mission. If not, specify the kind and amount of investment that would be needed to build faculty necessary for such a program.

- b. Facilities and equipment: Are the facilities and equipment (buildings, library collections, computing capabilities etc.) available to carry out the mission alteration? Please provide the specifics for each of these categories.
6. If the campus does not have the requisite facilities and equipment, what will be the cost of acquiring them? What is the campus plan for acquiring needed resources?
7. How would the change in mission affect the assignment of undergraduate instruction on your campus? If faculty currently teaching undergraduate courses will have teaching assignments in graduate classes, how will the undergraduate classes they give up be covered?
 - a. Would class sizes decrease or increase to meet the needs of new programs? Provide budget and class size data to justify your response.
 - b. Would the proportion of classes taught by graduate assistants, adjuncts or other non-tenure track faculty increase or decrease? Provide budget and instructional assignment data to justify your response.
 - c. Would the quality of instruction improve? Explain.
8. How would the change in mission affect graduate instruction on your campus?
 - a. Would class sizes decrease, increase? Justify your response.
 - b. Would the quality of instruction improve? Explain.
9. Explain how changes in the campus mission will impact research and technology transfer at your institution.
 - c. How would the type of research conducted on your campus be affected by the change in mission?
 - d. How would the quality of research conducted on your campus be affected by the change in mission? Justify your response.
 - e. How would the quantity of external research funding for research conducted on your campus be affected by the change in mission? From what sources do you anticipate more external research funding? How much? Justify your response?

- f. Does your campus have the expertise in patents, business formation or other forms of technology transfer to be effective if the mission is changed? Be specific about the expertise currently available or how your campus would secure it.
 - g. Does your campus have the space, facilities, and equipment needed to carry out an expanded research agenda? Be specific.
- 10. How would the proposed mission alteration better serve the state? Be specific.
- 11. What are the net cost benefits of the proposed change in your mission? Are the direct costs and opportunity costs associated with the mission alteration equal to or greater than the gains to the state identified by the university? Please explain and provide evidence of this net benefit.
- 12. Are other UNC campuses currently serving the need identified in your revised mission proposal?
- 13. Would a joint effort undertaken in concert with other UNC campus programs more efficiently meet the needs your proposed mission expansion seeks to serve?
- 14. Have you consulted other UNC campuses about such cooperative efforts?
 - a. If so, provide the specifics of those consultations and the outcome of the consultations.
 - b. Do you anticipate that the change in mission will result in more collaborative activities with other UNC campuses? Be specific.
- 15. Has your campus considered online instruction from another UNC campus or non-UNC campus to satisfy instructional needs the proposed change in mission is designed to address? Is it feasible to use online instruction for this purpose?

Appendix III: Responses to the Consultants Questionnaire from the Four Universities Proposing Major Mission Change

A. Appalachian State University

Response to the Questionnaire for Campuses Proposing Significant Mission Change

Appalachian State does not propose “significant mission change” at this time. The draft of the Mission Statement submitted here, approved by the Appalachian State University Board of Trustees on September 27, 2013, is a restatement of the previous Board of Governors’ approved mission. The restatement incorporates findings from ongoing, broad-based strategic planning deliberations by the University Planning and Priorities Council (UPPC), chaired by the Provost and consisting of approximately 30 campus representatives. This proposed Mission Statement resulted from an almost year-long iterative process involving the UPPC, subcommittees and task forces, a February 2013 survey of campus and off-campus constituencies, open forums across the summer and continuing through the fall, and online comments about Mission Statement drafts. The language of the Mission Statement represents a way of speaking about Appalachian State that was manifested in the comments of hundreds of students, faculty, staff, alumni, parents, and community members. It is an attempt to capture and articulate the uniqueness of Appalachian State in mission, place, and heritage.

Previous Mission

Established in 1899 as Watauga Academy, Appalachian State University has evolved into a preeminent university located in a unique, rural mountain environment. As a member of the University of North Carolina, Appalachian's fundamental mission is to discover, create, transmit, and apply knowledge to address the needs of individuals and society. This mission is achieved by providing undergraduate students a rigorous liberal education that emphasizes transferable skills and preparation for professional careers; offering graduate students distinctive, relevant programs; maintaining a faculty whose members serve as excellent teachers and scholarly mentors for their students and who produce high levels of scholarship and creative activities.

Appalachian recognizes that the success of the University depends upon the achievement and cooperation of a diverse community of students, faculty, and staff and strives to implement policies and allocate resources accordingly. We accept our responsibility to be actively involved in addressing the educational, economic, cultural, and societal needs of the changing region, state, nation, and world. As a publicly funded institution, Appalachian is committed to accomplishing its initiatives through efficient and effective resource utilization.

Revised Mission: Approved by the Board of Trustees on 9-27-13

Appalachian State University prepares students to lead purposeful lives as engaged global citizens who understand their responsibilities in creating a sustainable future for all.

Our location in the distinctive Appalachian mountain town of Boone, North Carolina, profoundly shapes who we are. As a constituent institution of the University of North Carolina, we fulfill our core academic missions of teaching, scholarship, and service in ways that honor our geography and heritage.

We bring people together in inspiring ways. The transformational Appalachian experience develops individuals who are eager to acquire and create knowledge, to grow holistically, to act with passion and determination, to embrace diversity and difference, and to become contributing members of society.

We create rich environments where students can thrive. Our students are educated broadly and are simultaneously equipped with strong disciplinary knowledge. Academic learning occurs in a wide range of undergraduate, selected masters, intermediate, and doctoral programs offered on campus, at off campus sites, and online. Faculty and students engage in research and scholarship that advance knowledge and address the problems of our region, state, and world through creativity and innovation. Learning takes place within formal and informal instructional settings with dedicated faculty members, in co-curricular programs that enrich classroom experience, in interdisciplinary educational formats, and through outreach to the local community and beyond. Appalachian cultivates diverse and vibrant arts that enrich the cultural and intellectual climate of the campus and region.

We promote a spirit of inclusion that inspires students, faculty, and staff to form relationships extending well beyond graduation. Our students think critically, communicate effectively, make local to global connections, and understand the responsibilities of community engagement. We embrace our obligation to help create healthy, just, and sustainable societies by equipping our students to live with knowledge, compassion, dedication, humility, and dignity.

Questionnaire for the Campuses Proposing Significant Mission Change

1. Explain why your campus is proposing to alter its mission? What are the benefits to stakeholders?

In Fall 2012, we began our strategic planning process and determined at that time a mission revision or refreshing was needed. Since the time of the last mission, our institution has placed increased emphasis on themes of sustainability and of creating a transformational experience for our students.

Many drafts of a revised Mission Statement emerged through numerous meetings of the University Planning and Priorities Council (UPPC) and subcommittees and task forces, and we sought input from our stakeholders through an online survey. These stakeholders included: students, faculty, staff, alumni, community members and members of leadership boards. We also held campus-wide forums across the summer months to present and discuss the strategic planning process in general and the mission statement in particular.

The important threads that were mentioned as priorities for the campus were location/place, care of the environment, sustainability, transformational experiences for students, a need to impact the region, and preparing students for meaningful careers and life. The mission statement was revised to reflect these areas.

The benefit to the campus, our stakeholders and the UNC system is a differentiation of our institution as one that focuses on a unique transformational experience where students “learn, know and do”. We are unique within the system and the nation as only one of two public master’s comprehensive institutions that has the following Carnegie profile: Masters L: Master’s Colleges and Universities (larger programs), combined with our Carnegie Size and Setting (L4R), and Undergraduate Profile (FT4/MS/HTI). (It is interesting to note that the second institution with these characteristics is UNC-Wilmington).

2. Is the proposed mission aligned with the University of North Carolina System Mission? Explain with some precision how it fits within that mission.

The University of North Carolina includes institutions categorized as: doctoral extensive, doctoral-research, masters comprehensive and baccalaureate. Our revised mission is not designed to change our Carnegie designation. We remain one of six master’s comprehensive universities in North Carolina and one that has as its charge to meet the needs of the western regions of the state. We believe we are uniquely positioned to stand out from other master’s comprehensive because of our mission and our focus on creating a transformational educational experience.

3. Does the proposed mission change advance the five year strategic plan, *Our Time Our Future*, adopted by the Board of Governors in February, 2013? In what ways?

The mission fits well into *Our Time, Our Future*. It also informs the new strategic plan that is being developed. Appendix 1 provides a summary of the linkages between the ASU (Mission, Strategic Plan and Metrics) and *Our Time, Our Future*. **Please note that the Strategic Plan Initiatives are draft only.** The document was circulated to campus for comment on October 7. It is anticipated that the final draft of the strategic plan will be approved the ASU Board of Trustees in December.

c. Which goals are furthered by the proposed mission revision? How? See Appendix 1

- d. **Which strategies and action steps are enhanced by the mission alteration? How?**
 See Appendix 1

4. **If the mission change you propose is granted, what new degree programs, and at what levels, might your campus propose within the next five years? Within the next ten years?**

The Deans Council includes all deans, vice provosts, associate vice chancellors of enrollment management and IT, and the director of institutional research, and the provost. This council has been developing a process for determining what new programs might be added to the campus portfolio. It is likely that applied and professional degree programs would be viewed more favorably than other.

Appendix 2 provides a listing of potential programs at the graduate and undergraduate level. This list has not been vetted by the Deans Council – the group which is charged to determine best mission fit of proposed programs. Additionally, Appalachian State University will host a regional health care summit to determine regional needs for health care professionals. Invitees will include community college, hospital system and other health care individuals. The purpose of the summit will be to engage with employers about gaps in education/training of our students as well as to understand workforce needs in western North Carolina.

Answers to these questions may be found in Appendix 2.

- a. **What is the evidence that an adequate demand exists for the graduates, research, or services that the new programs or activities might produce?**
- b. **What is the evidence of the economic/social need for the programs that might result from altering your campus's mission?**
- c. **Provide evidence that there are sufficient numbers of qualified students who wish to enroll in new programs who are not being served adequately in other programs in the UNC system.**

5. **Does your campus have the resources required to carry out the proposed mission and the new degrees that might be justified under that new mission?**

- a. **Faculty: Provide data on faculty already employed who have the requisite education and credentials needed to carry out the enhanced mission. If not, specify the kind and amount of investment that would be needed to build faculty necessary for such a program.**

Currently, the faculty complement is sufficient to carry out the revised mission. This capability was affirmed for Core Requirement 2.8 and Comprehensive Requirement 3.7, particularly 3.7.1, by a SACSCOC off-campus review in November 2012 and an on-campus committee review in April 2013.

The campus is in the process of an extensive program review, titled Program Prioritization. The goal of this process is to identify programs poised for national/regional prominence; programs that could become niche or destination programs; programs that can be consolidated for efficiency; and, programs for elimination. This process when completed will result in increased flexibility in terms of faculty positions. Faculty positions can be reallocated to focus on strategic directions outlined in the new strategic plan, slated to be approved in December 2014. It will also result in alleviation of space and resources.

- b. **Facilities and equipment: Are the facilities and equipment (buildings, library collections, computing capabilities etc.) available to carry out the mission alteration? Please provide the specifics for each of these categories.**

One of the advantages of focusing on applied research is the reduced cost of facilities. However, it is true that Appalachian needs additional space for all types of research. In the past year, a University-wide Space Committee has been formed to more efficiently assign space on the campus.

6. **If the campus does not have the requisite facilities and equipment, what will be the cost of acquiring them? What is the campus plan for acquiring needed resources?**

We are in the process of developing proposals to potential donors who have expressed interest in some of our strategic thinking around applied research.

7. **How would the change in mission affect the assignment of undergraduate instruction on your campus? If faculty currently teaching undergraduate courses will have teaching assignments in graduate classes, how will the undergraduate classes they give up be covered?**

We are in the process of a program review. The process, titled Program Prioritization, requires all academic programs to justify their programs across the themes of: mission fit, demand, quality, faculty involved, facilities/equipment, costs, duplication, future direction and critical mass. The deans have been directed to rank order all programs from those that should receive enhancement to those we may eliminate.

The result of the process should be an ability to complete internal reallocation to enhance those programs that are mission-centric and in high demand.

- c. **Would class sizes decrease or increase to meet the needs of new programs? Provide budget and class size data to justify your response.**

Class sizes overall are not expected to change as a result of new programs that may emerge within campus priorities as defined in the strategic plan. There simply is no reason that select new graduate programs in relatively confined disciplinary areas of the university will alter significantly the overall undergraduate experience with class sizes.

- d. **Would the proportion of classes taught by graduate assistants, adjuncts or other non-tenure track faculty increase or decrease? Provide budget and instructional assignment data to justify your response.**

As with a. above, we envision the few select new programs at the graduate level will have a marginal effect on faculty assignments and undergraduate student experiences.

- c. **Would the quality of instruction improve? Explain.**

A high level of quality of instruction currently is valued and evaluated, so that new or enhanced programs would not affect current quality-control practices.

8. **How would the change in mission affect graduate instruction on your campus?**

The mission for graduate education is not changed with this mission revision. However, there has been planning around the goal of increasing graduate enrollment by at least 15% by 2020. Appalachian State does not look like her peers and sister schools when compared on the number of graduate students. Currently, there are 11 masters programs that receive 77% of all applications to the graduate school. There currently are conversations with deans and department chairs about how enrollments can be increased in those programs since a demonstrated demand already exists.

h. Would class sizes decrease, increase? Justify your response.

Class sizes could increase for new programs and enhanced for some cognate programs. It should be noted that these programs are applied or professional and all/most also have specialty accreditation which in some cases dictates faculty-student ratios. Increases in enrollments would not significantly increase class size because the sizes of the programs likely will be modest.

i. Would the quality of instruction improve? Explain.

The quality of instruction would not be impacted negatively by these increases in enrollments given that the numbers would be relatively small per program. It should be noted that new graduate programs would be expected to have robust enrollments before being considered for approval..

9. Explain how changes in the campus mission will impact research and technology transfer at your institution.

a. How would the type of research conducted on your campus be affected by the change in mission?

Appalachian will always have a small number of faculty, primarily in the basic sciences, engaged in basic science research. However, the strategic direction for research will be in applied areas and will focus on interdisciplinary research and research in the area of sustainability. The campus will not have sufficient funds to have a full and robust portfolio of both basic and applied research. Our infrastructure cannot support or sustain significant increases in basic research. We can support applied research and can continue to receive recognition for groundbreaking research in energy, economics, environment and health that will have significant positive impacts on the region.

b. How would the quality of research conducted on your campus be affected by the change in mission? Justify your response.

The revised mission statement is a renewal of our commitment to focus on applied research that addresses the problems of the region and world. While Appalachian will always have some basic research on campus, our vision is to grow our applied research in important areas such as energy, environment and healthcare.

c. How would the quantity of external research funding for research conducted on your campus be affected by the change in mission? From what sources do you anticipate more external research funding? How much? Justify your response.

It is our belief that by focusing on interdisciplinary, applied research, we can increase our ability to get extramural funding. Currently, this is an area of focused improvement for our campus.

- d. **Does your campus have the expertise in patents, business formation or other forms of technology transfer to be effective if the mission is changed? Be specific about the expertise currently available or how your campus would secure it.**

We have limitations in this area. As we move forward, we would seek assistance and perhaps direct support from our sister campuses with expertise and depth in these areas. Given the size of the campus and the anticipated number of patents, it is not cost effective for us to build our own team of experts.

We believe we can find donors willing to serve as venture capital investors for our students' business ideas. Plans are underway to test the feasibility of this idea.

- e. **Does your campus have the space, facilities, and equipment needed to carry out an expanded research agenda? Be specific.**

The research agenda would not be expanded. Rather the amount of research on the campus would be increased. It will require careful assignment of space as well as developing metrics for continued use of space to be successful in increasing the amount of extramural research on the campus.

10. **How would the proposed mission alteration better serve the state? Be specific.**

The revised mission clearly stakes a claim to expertise, commitment and accomplishment in the area of sustainability. It signals to the state that Appalachian is committed to educating global citizens who will make positive changes wherever they are. It will serve the state by emphasizing what we are which also will signal what we are not. It is our belief that the revised mission statement will differentiate us from other institutions in North Carolina and the nation. We want students to come to Appalachian for our unique programs and our commitment to creating a sustainable future. Educating students to act responsibly is a very good outcome for North Carolina.

11. **What are the net cost benefits of the proposed change in your mission? Are the direct costs and opportunity costs associated with the mission alteration equal to or greater than the gains to the state identified by the university? Please explain and provide evidence of this net benefit.**

We believe our mission strengthens our position as a high-quality master's comprehensive institution. Because we have staked out this niche position in the system, at this time, we do not anticipate seeking to add Doctor of Philosophy programs which could result in a change in Carnegie classification for the campus unless enrollments were carefully monitored. Should we seek approval for doctoral degrees, they would likely be professional and clinical doctorates that have a direct impact on workforce.

There are conversations at the national level to change the degree requirements for practice in clinical psychology – requiring a Ph.D. as the entry level degree. Should that occur, we may seek permission to move our current master's program to a Ph.D. program. This program is included in the listing of potential new programs. If the entry level degree changes in North Carolina, the University would very likely seek approval for a degree to meet the clinical demand. Most importantly, we likely would control enrollment in the College of Education Ed.D. Program and the Clinical Psychology Ph.D. program to ensure that Appalachian State University remains a master's comprehensive.

12. Are other UNC campuses currently serving the need identified in your revised mission proposal?

It is our belief that we are the institution that offers education programs that best represent a master's comprehensive and we also offer programs that are "uniquely" Appalachian. Our work in sustainability will inform new programs with an emphasis on interdisciplinary programs focused on solving the problems of the region...

We do not compete with others around for any particular program. Students seek Appalachian for many reasons, but one of the most commonly cited reasons is location.

13. Would a joint effort undertaken in concert with other UNC campus programs more efficiently meet the needs your proposed mission expansion seeks to serve?

We are not proposing a mission expansion. As a unique master's comprehensive institution, we would be eager to collaborate with other universities around common goals. An example of such collaboration currently exists around foreign language.

14. Have you consulted other UNC campuses about such cooperative efforts?

We have not consulted other campuses about cooperative efforts because we have not yet identified programs for priority. However, we have developed a collaborative with the Wake Forest School of Medicine. Beginning in fall 2014, students from the Wake Forest Physician Assistant (PA) Program will be educated at Appalachian. This collaborative allows us to impact the healthcare needs of the region without the expense of creating a new program. The PA students will interact with our health professions students around the concept of interprofessional healthcare delivery. This is an added bonus to the campus along with the creation of clinical practicum sites at Wake Forest Baptist Hospital.

a. If so, provide the specifics of those consultations and the outcome of the consultations.

See the above description of the collaboration with Wake Forest School of Medicine.

b. Do you anticipate that the change in mission will result in more collaborative activities with other UNC campuses? Be specific.

Yes. We believe collaboration with other institutions in North Carolina better serves our students and our state. As we move forward, we will seek collaboration when appropriate.

15. Has your campus considered online instruction from another UNC campus or non-UNC campus to satisfy instructional needs the proposed change in mission is designed to address? Is it feasible to use online instruction for this purpose?

We have not moved far enough into our planning of possible new programs to consider online instruction from other sources. Our campus is in the process of developing online courses in those programs where course barriers exist and for those courses we could offer online in summer to speed time to degree.

We are considering a consolidation of all design programs on campus and the faculty members are proposing creating of MOOCs to serve the ASU student population as well as students outside of our institution.

Again, the proposed change to the Mission Statement reaffirms key elements of Appalachian State's current Carnegie classification: Masters L: Master's Colleges and Universities (larger programs), Size and Setting (L4R), and Undergraduate Profile (FT4/MS/HTI). Significant online instruction is not consistent with that mission and classification. We have initiated a program titled *14 by 14*, to develop 14 new online offerings by fall of 14. These courses will focus on general education and barrier courses.

Appendix 1: Question 3 – Advancing Our Time, Our Future

ASU Mission	ASU Draft Initiatives	ASU Examples of Metrics	Our Time, Our Future
We create rich environments where students can thrive. Our students are educated broadly and are simultaneously equipped with strong disciplinary knowledge. Academic learning occurs in a wide range of undergraduate, selected masters, intermediate, and doctoral programs offered on campus, at off campus sites, and online.	<ul style="list-style-type: none"> <i>Enhance academic quality and improve student success through effective enrollment management, improved retention efforts and excellence in teaching and learning that ensures the success of a talented and diverse student population.</i> Increase graduate student presence and support on campus. Enhance our outreach specifically to high school and community colleges, to create more integrated learning experiences, to share our faculty's expertise, and to promote the K-20 educational experience from an access and opportunity perspective . 	<ul style="list-style-type: none"> Freshman to Sophomore Retention Six Year Graduation Rate Undergraduate Degree Efficiency Transfer 4-Year Graduation Rate 4-Yr Graduation Rate Graduate Student Degree Efficiency 	Goal 1: Degree Attainment
Appalachian State University prepares students to lead purposeful lives as engaged global citizens who understand their responsibilities in creating a sustainable future for all.	<ul style="list-style-type: none"> Support a general education program that prepares all UG students for effective communication, critical and creative thinking, knowledge of the diverse world, and understanding of the responsibilities of community membership. Facilitate interdisciplinary and integrative approaches to teaching and learning, to prepare twenty-first century students to be flexible, creative problem-seekers who can adapt to changing work requirements and life situations. Develop new programs and select existing programs for enhancement where direct linkages to the mission exist. 	<ul style="list-style-type: none"> National Survey of Student Experiences (NSSE) Considering Faculty Survey of Student Experiences (FSSE) Collegiate Learning Assessment (CLA) Surveys of Sophomores, Seniors, and Alumni 	Goal 2: Academic Quality
Faculty and students engage in research and scholarship that advance knowledge and address the problems of our region, state, and world through creativity and innovation.	<ul style="list-style-type: none"> Ensure that the infrastructure supports greater participation in research and grant opportunities. Enhance faculty resources to expand research and creative endeavors. Develop local to global connections around curricular, co-curricular and research endeavors that promote sustainability principles. Establish a system to ensure outreach and engagement are rewarded in faculty and staff evaluations and that opportunities to improve outreach and engagement are offered. Create a student and shared learning experience so that graduates have an understanding of their responsibility to be contributing and productive citizens. Engage external stakeholders through enhanced communication and deeper relationships. 	<ul style="list-style-type: none"> Sponsored research funding Student participation in faculty research and scholarship QEP implementation and assessment Annual faculty goals and evaluations Alumni, parent, and community surveys and forums 	Goal 3: Serving the People of NC
We embrace our obligation to help create healthy, just, and sustainable societies by	<ul style="list-style-type: none"> Establish appropriate metrics to benchmark and model organizational efficiencies. 	<ul style="list-style-type: none"> Space planning and utilization IT efficiencies and 	Goal 4: Maximizing Efficiencies

equipping our students to live with knowledge, compassion, dedication, humility, and dignity.	<ul style="list-style-type: none"> • Develop a technology master plan and structured process for strategic and prioritized investment in technology to support continual advancement and effective delivery of instruction, research activities and administrative processes for the university. • Develop and utilize a transparent campus-wide framework of governance for information technology. 	effectiveness <ul style="list-style-type: none"> • Alumni surveys • Employer surveys 	
Learning takes place within formal and informal instructional settings with dedicated faculty members, in co-curricular programs that enrich classroom experience, in interdisciplinary educational formats, and through outreach to the local community and beyond.	<ul style="list-style-type: none"> • Develop a sustainable campus wide funding model for information technology. • Design, implement and manage an information analytics and data warehouse platform at Appalachian State University. • Live our commitment to sustainability in our facilities, programing and academic offerings. 	<ul style="list-style-type: none"> • Financial Integrity (UNC FIT) • Investment Per Degree • Analytics and BI usage • Sustainability rankings 	Goal 5: Accessible & Financially Stable

Appendix 2: Potential Programs

Proposed New Graduate Programs at Appalachian in line with new Mission Statement

Program	5 years	10 years	Demand for grads, research, services	Economic/Social Ne
Business Analytics	X		<p>"The United States alone faces a shortage of 140,000 to 190,000 people with deep analytical skills as well as 1.5 million managers and analysts to analyze big data and make decisions based on their findings." <i>McKinsey Global Institute Analysis 2011</i></p> <p>"The United States is projected to create 44 percent of the new jobs for analytics experts but only 23% of the supply, leading to a shortfall of nearly 32,000 workers." <i>Accenture 2012</i></p> <p>The demand for analytic skills is supported by research from the U.S. <i>Bureau of Labor Statistics</i>, which predicts that by 2018 there will be a 13 percent increase in the need for statisticians, a 22 percent increase in demand for operations research analysts and a 24 percent increase in management analysts . . . fields such as marketing, health care and finance are expected to experience a particularly strong need for analytics professionals.</p>	Our current information technology environment generates massive amount data (generally called "Big from transactions, business interactions, social exchange and sensors. With ongoing innovation churning around digital technologies, the Internet and mobile computing, the amounts of data continue to grow rapidly and exponentially. Both the public and private sectors are in need of analysts who can manage and interpret the burgeoning amounts of Data
Program	5 years	10 years	Demand for grads, research, service	Economic/Social Ne
Health Admin (focus on Health Informatics)	X		<p>The job outlook for healthcare administrators is strong, with the federal <i>Bureau of Labor Statistics (BLS)</i> projecting 22% growth nationally in the profession from 2010 to 2020, well above the 14% average for all occupations. As noted by the BLS, more nurses and physicians will be needed to care for an aging U.S. population. Consequently, more healthcare administrators will be needed to manage the increasing number of healthcare professionals and facilities.</p>	With emphasis on electronic medical records, quality, patient safety and value-based payment, healthcare organizations need managers who understand health information systems and the capabilities of healthcare informatics to improve patient services and organizational efficiency. Recent initiatives from the Obama Administration created incentives for healthcare organizations to improve the

				capabilities. Many health organizations, especially providers, have management staff with limited knowledge and expertise to improve health information management that results in capitalizing on the economic incentives and improving the efficiency and effectiveness of patient service with health informatics.
Program	5 yrs	10 yrs	Demand for grads, research, services	Economic/social need
Environmental Monitoring and Analysis (Professional Science Master's)	X		Employment of environmental scientists and specialists is projected to grow by 19 percent from 2010 to 2020, about as fast as the average for all occupations. Heightened public interest in the hazards facing the environment, as well as the increasing demands placed on the environment by population growth, are expected to spur demand for environmental scientists and specialists. <i>Bureau of Labor Statistics 2012</i> . In NC, 9,000+ are currently employed as environmental scientists and specialists or in closely related positions at 500+	The environmental industry is a \$312B per year business sector. Environmental management has evolved from a regulatory compliance role to an active strategic role in industry and the public sector. With the growing emphasis on corporate social responsibility and sustainable

			businesses or agencies in NC (60+ in the AdvantageWest economic region), a vast majority of which are small businesses (1-10 employees) (<i>AccessNC, NC Dept. of Commerce</i>). The number of environmental and ecological service businesses in NC has grown geometrically since 1990 – since then, approximately 40% of new environmental and ecological service businesses in NC have been launched on or after 2010.	environmental management professionals are responsible for a wide range of activities, including developing and implementing environmental management information systems (EMIS), creating safety protocols to managing disaster recovery. Underpinning almost all environmental endeavors is the need for field instrumentation, data acquisition and analysis solutions, and project management.
Program	5 year	10 year	Demand for grads, research, services	Economic/social need
PhD in Rural Clinical Psychology		X	<p>According to the U.S. Department of Labor- <i>Bureau of Labor Statistics</i> (2012), employment for clinical psychologists is anticipated to “grow faster than average compared to other occupations,” at a rate of 22 percent between 2010 and 2020.</p> <p>The projected annual gap of doctoral-level clinical, counseling, and school psychologists is 76 practitioners. However, UNC system schools that currently train doctoral clinical psychologists only produce a small fraction of the psychologists needed by the state. The 2011-2012 academic year produced 3 Ph.D. graduates in Health/Medical Psychology from ECU and 3 from UNCC. UNCG had 6 and UNC-CH had 8 Ph.D. graduates in clinical psychology. The Occupational Supply Demand System (2012) anticipates growth of 9.4% of clinical, counseling and school psychologist in their combined coding system.</p>	<p>Licensed clinical psychologists will need the terminal degree licensure starting in 2018</p> <p>Rural communities in North Carolina evidence lower per capita income, greater unemployment, lower high school graduation rates, and higher percentage of aging citizens compared to urban areas of the state (USDA-Economic Research Service, 2008). These demographic underscore the critical need for training psychologists to work in rural settings. Well-trained psychologists can help alleviate this healthcare shortage through specialized training in rural mental health care delivery, disseminating empirically informed treatments, collaborating with health community agencies, and conducting research on</p>

				developing and implementing innovative solutions to the service delivery problems associated with rural regions (Jameson & Blank, 2007).														
Program	5 year	10 year	Demand for grads, research, services	Economic/social need														
Doctor of Physical Therapy		X	<p>By 2020, the <i>Bureau of Labor Statistics</i> (BLS) projects physical therapist employment growth of 39 percent, with the field adding 77,400 more jobs. The demand is greatest in therapy offices and in the home health care segment which project a 47-54% growth for physical therapy jobs.</p> <table><tr><th>Employers</th><th>Projected growth by 2018</th></tr><tr><td>Offices of therapists</td><td>54%</td></tr><tr><td>Home health care services</td><td>47%</td></tr><tr><td>Office of physicians</td><td>34%</td></tr><tr><td>Nursing care facilities</td><td>25%</td></tr><tr><td>Hospitals, public and private</td><td>12%</td></tr><tr><td>Self-employed workers</td><td>5%</td></tr></table>	Employers	Projected growth by 2018	Offices of therapists	54%	Home health care services	47%	Office of physicians	34%	Nursing care facilities	25%	Hospitals, public and private	12%	Self-employed workers	5%	As large numbers of Baby Boomers reach retirement and with it the health issues related to aging, the medical professionals who plan and execute rehabilitative programs designed to improve patient mobility and lessen pain will be in high demand
Employers	Projected growth by 2018																	
Offices of therapists	54%																	
Home health care services	47%																	
Office of physicians	34%																	
Nursing care facilities	25%																	
Hospitals, public and private	12%																	
Self-employed workers	5%																	
Program	5 year	10 year	Demand for grads, research, services	Economic/social need														
Master of Arts in Expressive Arts Therapy		X	<p>According to the U.S. Department of Labor-Bureau of Labor Statistics (2012), employment of mental health counselors and other mental health professional is expected to grow by 25-36% from 2010 to 2020. The Bureau does not list a separate category for Expressive Arts Therapy.</p> <p>Recent graduates with an expressive arts therapy emphasis or</p>	The current status of our nation and world exemplify the need for professionals in a variety of fields who can think creatively, problem solve and to imagine new ways of being. All of the arts, when employed in various professions, activate and realize the inherent creative capacity														

			<p>certificate have demonstrated that graduates are employed in a wide variety of settings including colleges and universities (30%), public schools (22%), mental health (16%), private practice (15%) and addictions treatment and prevention (8%), hospitals, (4%), hospice (4%), social service/court system agencies (4%), community arts (4%), wilderness therapy (4%). A number of our graduates (11) have attained or are pursuing terminal degrees. Clearly, this is an area of training that gives access to many important and needed areas of service.</p>	<p>of individuals and groups a offer a space to both expre and contain pain and traum</p>
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Proposed New Undergraduate Programs at Appalachian in line with new Mission Statement

Program	5 yrs	10 yrs	Demand for grads, research, services	Economic/Social Need	Student interest
Supply Chain Management	X		<p>Analysts from all corners of business indicate that there is an unprecedented SCM talent shortage. The US Bureau of Labor Statistics predicts job growth of 26% through 2020 for SCM positions such as logisticians, which is 16% higher than the national average for all job titles. Salaries for supply chain professionals are increasing, with entry-level positions averaging \$51,578 and those with SCM Bachelor's degrees averaging \$101,953 (Tracey, 2013).</p> <p>SCM jobs in NC have increased 49% since 2006, which was higher than the national average of 32%, according to the Education News Career Index (2013).</p> <p>During the course of developing the SCM Minor and evolving to an SCM Major, we</p>	<p>As SCM is the lifeblood of modern businesses, it has emerged as a primary means of sustainability and profitability for local and global firms. Due to its vast scope, the SCM field provides the opportunity to maximize efficiency, minimize material costs and foster environmental stewardship across broad networks of enterprises. Accordingly, a movement in sustainable SCM has resulted in significant reduction in energy consumption and environmental impacts, while creating a plethora of job opportunities for SCM grads. The end result of this movement is significant improvement in competitiveness of firms across all industry sectors in North Carolina and beyond. SCM thus relates to all three legs of the sustainability imperative (people, profits, and the planet).</p> <p>Accordingly, in order to capitalize on the sustainable SCM movement, remain competitive and build their supply chain talent pools, companies must be proactive in recruiting, developing and retaining</p>	<p>Student interest seems strong, as demand for SCM courses has outstripped capacity over the past three years, with consistently full sections each semester. Further, the SCM minor has emerged as one of the fastest growing programs in the Walker College of Business, growing to over 120 students by October 2013. Students minoring in SCM have seen a dramatic increase in job opportunities, and have thus expressed broad support for a major in SCM.</p>

			<p>have built a regional coalition that strongly supports this</p> <p>proposal. The coalition consists of businesses such as Global Shippers Organization, Prysmian Group, IBM, Fed Ex, Lowes, International Paper and Old Dominion Freight Line.</p>	<p>supply chain professionals (Cottrill, 2010).</p>	
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B. Fayetteville State University

Questionnaire for the Campuses Proposing Significant Mission Change

Answers to these questions must be returned no later than October 11 to Samantha McAuliffe in the Office of the Senior Vice President for Academic Affairs as a Word attachment.

6. Explain why your campus is proposing to alter its mission? What are the benefits to stakeholders?

The need to alter the mission is a direct consequence of the desire to introduce a PhD Program in Entrepreneurship, which the university was told was beyond the scope of our current mission statement. At the time of the introduction of the doctorate in educational leadership in 2006, a change in mission was proposed by the Fayetteville State University (FSU) Board of Trustees that would allow the introduction of select doctoral programs. However, at the time, the UNC general administration recommended that the revised mission should only refer to the EdD program.

While we would be happy to amend the mission statement to refer to two specific doctoral programs in educational leadership and entrepreneurship, it was felt that the reinstatement of the earlier broader language would eliminate the need for future programs to undergo an additional level of review beyond the existing Appendix A 'intent to plan' and Appendix C 'intent to establish' protocols and thus streamline the introduction of any new programs.

It should be noted that the broader language will not, and should not, be construed as an invitation to launch a suite of doctoral programs to compete with traditional research universities. As a historically black university (HBCU), FSU is committed to offering programs that directly benefit underserved, disadvantaged, and underrepresented populations. Like the EdD program before it, we believe the doctoral program in entrepreneurship will create a similar benefit (outlined in more detail below).

7. Is the proposed mission aligned with the University of North Carolina System Mission? Explain with some precision how it fits within that mission.

The mission of the UNC System is to "...to discover, create, transmit, and apply knowledge to address the needs of individuals and society" [1]. The intent to offer select doctoral programs beyond the doctorate in educational leadership at FSU is not inconsistent with this undertaking. In fact, we are proposing to change only three words in a mission statement that has previously been adjudicated to align with the system mission. The proposed change does not substantially alter or disrupt that nexus.

8. Does the proposed mission change advance the five year strategic plan, Our Time Our Future, adopted by the Board of Governors in February, 2013? In what ways?

a. Which goals are furthered by the proposed mission revision? How?

The third goal of Our Time Our Future[2] refers to “Serving the People of North Carolina.” The change of mission will allow us to continue pursuing this goal by offering select doctoral programs that serve the needs of our community, particularly in the area of economic development.

b. Which strategies and action steps are enhanced by the mission alteration? How?

The report lists two strategies that are relevant to our change of mission:

- *More readily apply the research and scholarship carried out on our campuses to the state’s economic, civic, social challenges, and*
- *Directly engage with the specific needs of businesses, nonprofit groups, and governments throughout North Carolina.*

Entrepreneurship was specifically listed on page 59 as one of the top 10 regional economic priorities according to a survey of business leaders and economic developers conducted for the report. Moreover, we plan to deliver doctorates that are more applied than a typical research university that tends to be focus on the production of basic research. This focus explicitly supports the call to apply research and scholarship to the state’s challenges.

Needless to say, references to the importance of entrepreneurship to the state are scattered throughout the document:

- It is our responsibility to ensure that these advantages are matched by a technological infrastructure and an entrepreneurial ethos that enable the University to compete effectively without compromising core values (p. 7)
- We will support and reward faculty who demonstrate an entrepreneurial spirit and seek new frontiers of knowledge, commercialize technology, and create opportunities for students (p. 11)
- Recruiting entrepreneurially-minded graduate students (see section 3) will result in an increase in graduate program enrollment, improvements in graduate program graduation rates, and an increase in the percentage of graduates choosing to remain and work in North Carolina (p. 32)
- UNC should be a destination and a home for engaged and entrepreneurial faculty, students, and staff, while building on its historic strengths to become

an even more trusted partner for the state's business, nonprofit, and government leaders (p. 56)

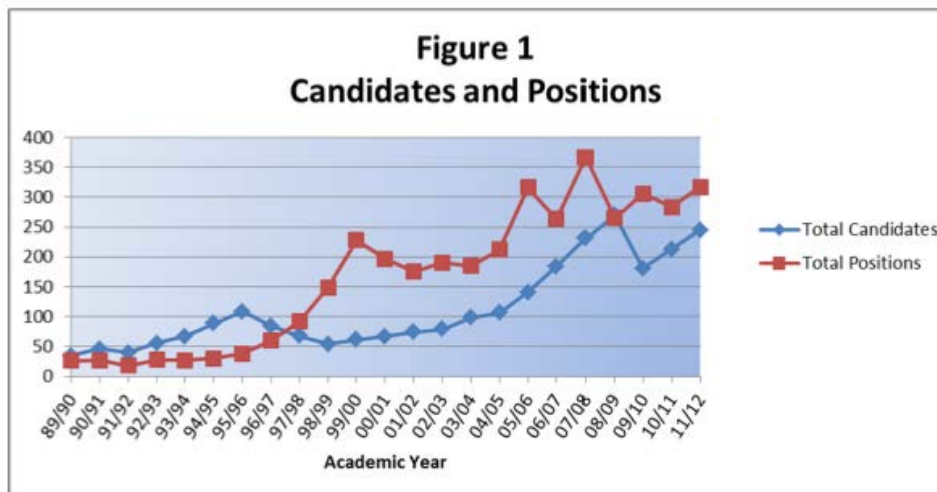
- North Carolina must identify and grow a cadre of highly talented, entrepreneurial students (p. 66).

9. If the mission change you propose is granted, what new degree programs, and at what levels, might your campus propose within the next five years? Within the next ten years?

As we outlined earlier, this mission change was driven by an opportunity to offer a PhD in entrepreneurship. No other proposals are currently being entertained.

a. What is the evidence that an adequate demand exists for the graduates, research, or services that the new programs or activities might produce?

Todd Finkle and his colleagues have tracked the number of positions and candidates in the field of entrepreneurship for over a decade [3-5]. The most recent data from 2011-12 [4] indicates that there continues to be more positions than candidates (see Figure 1 reproduced from article). Moreover, there were only 51 candidates with a primary interest in entrepreneurship but 202 positions seeking primary entrepreneurship expertise [4].



As a result, business schools are filling positions with marginal candidates. Anecdotal evidence from colleagues at the Annual Academy of Management meeting, the major recruiting conference from accredited business schools, suggests that up to half of the candidates held doctoral qualifications from unaccredited schools, like the University of Phoenix. Another recent study of 300 entrepreneurship faculty from 70 accredited and 20 unaccredited programs found that only 25% of faculty had published in academic entrepreneurship journals, and over 40% had no academic publications at all [6].

The premier accrediting body for business schools, the American Association of Collegiate Schools of Business or AACSB, has recently drafted new standards, emphasizing new values including documenting the impact of school activities and more active engagement with the business community in response to the criticism that business schools were “out of touch” with the business world [7].

In the past, business faculty were either Academically Qualified (AQ) with a PhD and academic publications or Professionally Qualified (PQ) on the basis of experience in professional practice. The old standards mandated a minimum floor of 50% AQ faculty in an undergraduate institution.

The new standards create a new category of Practice Academic, which according to a recent doctoral education task force:

“...describes individuals with, “normally, a doctoral degree emphasizing advanced foundational discipline-based research,” but who “augment their initial preparation as academic scholars with development and engagement activities that involve substantive linkages to practice, consulting, other forms of professional engagement...This task force believes that participation in applied research while in a doctoral program and/or prior or simultaneous practical experience can be instrumental in the preparation of this type of faculty member.”[8]

Practice academics will be able to maintain currency in their field through professional activities. The creation of this new category will make it easier for AACSB schools to hire doctoral students with professional experience. It will also make it attractive for retired entrepreneurs to undertake a PhD as they will not have to publish in academic journals as a condition of employment. We believe this trend will create a sizable demand for our PhD program, which will be explicitly targeted at those wishing to become Practice Academics.

b. What is the evidence of the economic/social need for the programs that might result from altering your campus’s mission?

As mentioned above, entrepreneurship is one of the top ten regional priorities for business leaders in North Carolina [2]. We also mentioned that FSU is committed to providing for underserved and disadvantaged groups in the community. Research shows that the African-American rate of business formation is half that of the white population with higher rates of failure [9, 10]. Low net worth among this demographic seems to play a major role resulting in lower capital investment at startup, less working capital for unforeseen problems, and entry into low profit industries because they tend to have low capital requirements. We are currently in

early negotiations with the Kauffman Foundation about creating a minority venture fund to address this issue.

However, other factors also play a role. Chief among these is the absence of role models or demonstration projects in the African-American community to instruct and build confidence in general business skills and industry-specific knowledge, particularly in high tech industries [10, 11]. One of the major goals of our program is to recruit successful (and if, possible, minority) entrepreneurs into the program, where a core requirement will be teaching undergraduate classes. This will provide a spillover effect of knowledge to our students thus benefiting the state, the region, and our undergraduate student body.

- c. Provide evidence that there are sufficient numbers of qualified students who wish to enroll in new programs who are not being served adequately in other programs in the UNC system.***

To obtain a quantitative estimate of potential demand, Fayetteville State conducted a survey that was distributed on the internet and by email to a list of GRE test takers from North Carolina who indicated an interest in business and economics related programs. The survey received 308 responses from students with undergraduate degrees from most of the major universities in North Carolina. When told about the program and the potential for a \$20,000 stipend, 37.8 percent of those surveyed indicated strong interest (5 on a scale of 5) in enrolling in the program. Given that UNC Chapel Hill's PhD Program in Business Administration with a concentration in Strategy and Entrepreneurship is only able to serve a couple students per year, we believe FSU will fill an important unmet need and have many qualified students to enroll in the program.

In addition, we believe our program will be attractive to those interested in the new AACSB category of Practice Academic (typically those with direct entrepreneurial experience and a graduate degree). Interestingly, most angel investors tend to be retired entrepreneurs with graduate level education. They form part of our target market. There are over 10,000 people who belong to angel investment groups in the US today[12]. The number of candidates with non-accredited doctorates (about 50%) noted earlier may also reflect some latent demand for an accredited practice-oriented PhD.

10. Does your campus have the resources required to carry out the proposed mission and the new degrees that might be justified under that new mission?

- a. Faculty: Provide data on faculty already employed who have the requisite education and credentials needed to carry out the enhanced mission. If not, specify the kind and amount of investment that would be needed to build faculty necessary for such a program.***

Fayetteville State University (FSU) has recently hired two world-class faculty members in entrepreneurship for a total of three faculty to be dedicated to the doctoral program. These faculty are identified in the table below along with some

key credentials. A curriculum vitae for each core faculty member is included in the Appendix to this document. No further hires are required to deliver the PhD program in entrepreneurship. Note that two of the three hires are participants in the state's Distinguished Professors Endowment Trust Fund, which demonstrates the ability of the fund to attract nationally-known academics to even the smallest campuses in the UNC system and enable us to consider expanding our doctoral programs.

Fayetteville State University has also received another \$500,000 from the Spangler Foundation to endow a professor in economics (with an emphasis on free enterprise). While not essential for the establishment of the PhD program, it is hoped that this endowed chair will be filled in the near future and also participate in the program.

Name	Credential Highlights
Dr. Edward Stringham Lloyd V. Hackley Endowed Professor for the Study of Capitalism and Free Enterprise	36 refereed journal articles Editor, Journal of Private Enterprise Formerly on faculty at San Jose State U. and Trinity College Specialty: Entrepreneurial Economics
Dr. Steven Phelan Distinguished Professor & Endowed Chair of Entrepreneurship	28 refereed journal articles Founding Editor, Strategic Management Review Two best paper awards at top entrepreneurship conferences Formerly on faculty at U. Texas, U. Nevada, Rowan U. Served on 10 doctoral committees Delivered doctoral seminars at U. Texas Former director of two entrepreneurship centers Specialty: Strategic Entrepreneurship
Dr. David Pistrui Associate Professor & Director, Center for Entrepreneurship	15 refereed journal articles Editorial board, Journal of Engineering Entrepreneurship Several guest editorships Former holder of 2 endowed chairs Formerly on faculty at Illinois Institute of Technology, Alfred U. Former director of two other entrepreneurship centers Consulting experience in 20 countries Specialty: Family Business

The core faculty will be assisted in the supervision of dissertations by other members of the School of Business & Economics; entrepreneurship faculty from across the UNC system; and invited faculty from outside the state of North Carolina. The university will require all supervising faculty to meet the school's AACSB standards for doctoral faculty, which will be higher than those used for undergraduate or MBA classes. An indicative list of current faculty that are likely to serve on doctoral committees includes:

Name	Credentials
Dr. Eric Dent Professor	PhD, Leadership, <i>George Washington</i> MBA, <i>George Washington</i> Former Dean, UNC Pembroke

	Former Director, Doctor of Management Program, <i>UMUC</i>
Dr. Robert McGee Associate Professor	PhD, Accounting, <i>University of Warwick</i> MA, Taxation, <i>DePaul</i>
Dr. Thomas Williams Associate Professor	PhD, Finance, <i>Texas A&M University</i> MBA, Finance, <i>Rutgers</i>
Dr. Lewis Hershey Professor	PhD, Communications, <i>Louisiana State</i> ; MA, Communications, <i>UNC Chapel Hill</i>
Dr. Petur Jonsson Professor	PhD, Economics, <i>Penn State</i> Cand. Oecon. (CandidatusOeconomices) <i>Iceland</i> Department Chair

b. Facilities and equipment: Are the facilities and equipment (buildings, library collections, computing capabilities etc.) available to carry out the mission alteration? Please provide the specifics for each of these categories.

Unlike science and engineering, a PhD in entrepreneurship does not require extensive laboratories, equipment, or computing capability. Modern seminar rooms and basic computing resources are sufficient.

The university has also committed to making space available in the old career services office suite (on the second floor of the business school) as a dedicated space for the doctoral students, including shared office space and a seminar room. Fit out costs for this space are negligible and all three entrepreneurship currently have offices in that location.

The current library resources are more than adequate to deliver the program. Current subscriptions include: Business Source Complete, EconLit, JSTOR, Compustat, Dissertations Abstract, and the recently acquired “Entrepreneurial Studies Source”, a database focused specifically on entrepreneurship research.

6. If the campus does not have the requisite facilities and equipment, what will be the cost of acquiring them? What is the campus plan for acquiring needed resources?

Not applicable.

7. How would the change in mission affect the assignment of undergraduate instruction on your campus? If faculty currently teaching undergraduate courses will have teaching assignments in graduate classes, how will the undergraduate classes they give up be covered?

e. Would class sizes decrease or increase to meet the needs of new programs? Provide budget and class size data to justify your response.

One of the explicit aims of the PhD program in entrepreneurship is to place doctoral students with entrepreneurial experience in undergraduate (and graduate) classes to provide role models for our students and expose them to the latest knowledge from

the field. As such, all doctoral students on scholarships will be required to teach at least one course a year following completion of their qualifying exams. The effect of this policy will be to provide complete coverage for doctoral faculty without any effect on class size or budget. (The core entrepreneurship faculty are currently teaching ten sections –5 undergraduate section and 5 graduate sections).

- f. Would the proportion of classes taught by graduate assistants, adjuncts or other non-tenure track faculty increase or decrease? Provide budget and instructional assignment data to justify your response.***

As outlined above, senior doctoral students on scholarships would be required to teach at least one class in the School of Business & Economics.

- c. Would the quality of instruction improve? Explain.***

Instruction for undergraduate students will be improved as a result of the new mission. Our doctoral students will not mirror the typical graduate assistants found in major research universities. All of our candidates will be required to have significant entrepreneurial experience before entering the program with the explicit goal of sharing this knowledge in the classroom, improving both the competence and confidence of our undergraduate students.

Note that Fayetteville State University currently has a difficult time finding qualified adjunct professors and as a result, the percentage of classes taught by adjuncts is well below the norm and the result is fewer classes for undergraduate students and higher cost of delivery per student. The doctoral program will ensure that undergraduate students will have more course options once Fayetteville State University has more potential faculty to teach classes.

- 8. How would the change in mission affect graduate instruction on your campus?**
j. Would class sizes decrease, increase? Justify your response.
k. Would the quality of instruction improve? Explain.

Both AACSB and SACS currently allow professionally qualified staff to teach on graduate programs. It is highly likely that several of our doctoral students will have enough high level experience to serve as lead instructor in our MBA program. The impact on class size and quality would follow the same logic outlined above for undergraduate programs.

- 9. Explain how changes in the campus mission will impact research and technology transfer at your institution.**

- a. How would the type of research conducted on your campus be affected by the change in mission?***

The proposed mission change enhances FSU's capacity to undertake targeted scholarly and applied research including:

- Research related to the socio-economic challenges and opportunities of southeast region of North Carolina and greater state.
- Research related to free enterprise and the role of entrepreneurship plays in socio-economic development in capitalist and emerging markets regionally, nationally and globally.
- Research related to pedagogical methods, techniques and outcomes that shape and impact entrepreneurship education.
- Applied research activities that can lead to new venture formation, business growth, organizational, and economic advancement strategies.

b. How would the quality of research conducted on your campus be affected by the change in mission? Justify your response.

- Build Internal Capacity
Encourage faculty to undertake entrepreneurship related research, co-authorships, and funding sources.
- Build a Talent Pipeline
Create a new cadre of future scholars grounded in the rigor of entrepreneurship theory and practice to advance the field.
- Support Application and Impact
Advance applied research techniques, grounded in theory that can produce socio-economic impact related to enterprise formation, firm growth, and job creation.

The university has received a private grant of \$1.5 million to fund 5 doctoral students per cohort at \$20,000 per student per year. We believe it will attract top quality students who will be able to publish in top ranked journals in entrepreneurship.

c. How would the quantity of external research funding for research conducted on your campus be affected by the change in mission? From what sources do you anticipate more external research funding? How much? Justify your response?

Many entrepreneurs are interested in donating resources to programs that teach about entrepreneurship in theory and practice, and as a campus that serves many people from underserved backgrounds, the program will be particularly attractive to many donors. Currently the Koch Foundation, which donates millions of dollars per year to various causes, has expressed strong interest in funding stipends for doctoral students in our program to the tune of \$20,000 per student per year. Other large foundations based in North Carolina, which donate millions of dollars per year, have also expressed interest in donating \$50,000 or \$100,000 per year to Fayetteville State University. As such, the doctoral program will provide a platform for FSU to expand our funding sources including foundations, corporations and new tuition revenue. The core faculty have a track record of raising funds from the Koch, Kauffman, Coleman, Kern and Hughes foundations.

d. Does your campus have the expertise in patents, business formation or other forms of technology transfer to be effective if the mission is

changed? Be specific about the expertise currently available or how your campus would secure it.

The change in mission is not intended to generate intellectual property that results in technology transfer via patents or spinoffs. Ironically, however, the program will attract people who are competent in business formation and provide them with cutting edge theoretical knowledge. We would not be surprised if some of the doctoral students allow their knowledge to spillover to the tech transfer activities of the university. We expect our students will also be engaged with our various entrepreneurial organizations on campus, including the Small Business and Technology Development Center, Veterans Business Outreach Center, and Center for Entrepreneurship.

e. Does your campus have the space, facilities, and equipment needed to carry out an expanded research agenda? Be specific.

As outlined in Question 5, we currently have all of the resources needed to run the program successfully and generate valuable research output.

16. How would the proposed mission alteration better serve the state? Be specific.

Some of our doctoral students will originate from North Carolina and some of our graduates will be hired by universities in North Carolina. In addition the UNC system will serve the state bringing a continuous flow of successful entrepreneurs to North Carolina to share their knowledge and inspire confidence in our students. The FSU School of Business and Economics mission emphasizes the importance of assisting in “regional economic transformation by promoting entrepreneurial and economic education.”

As the University of North Carolina General Administration has stated, “UNC has always been a seed bed of innovation, in both our curriculum and our cutting edge research. Going forward, we know that innovation -- thinking and doing new things -- and entrepreneurship -- turning those new things into enterprises -- will be even more critical to our success in the global economy.” Similarly, the UNC Board of Governors Special Committee Report on Community and Economic Development states, “Our universities need to emphasize entrepreneurship and leadership across all disciplines both inside and outside the classroom.... The spirit and skills of entrepreneurship should be infused across disciplines, working with businesses and communities.” The PhD program in entrepreneurship can help increase entrepreneurial thinking across disciplines and in the general public in North Carolina.

17. What are the net cost benefits of the proposed change in your mission? Are the direct costs and opportunity costs associated with the mission alteration equal to or

greater than the gains to the state identified by the university? Please explain and provide evidence of this net benefit.

The cost-benefit analysis of this proposal is overwhelmingly positive.

On the benefit side, we are:

- Meeting a regional priority by promoting entrepreneurship in the university system and general community;
- Launching a doctoral program in an area with growing national demand and a demonstrated shortage of qualified faculty;
- Catering to a new category of Practice Academic that was created by changes in business school accreditation ultimately driven by the need for more engagement with the business community;
- Providing spillover benefits in the undergraduate and MBA programs at FSU that will assist in building the human capital of traditionally disadvantaged groups;
- Leveraging the Distinguished Professors Endowment Trust Fund; and
- Collaborating with other UNC campuses.

On the cost side, we:

- Do not require any new facilities, computing resources, or library assets;
- Do not need to hire any additional tenured faculty;
- Will not require subsidies to cover the instructional costs of the program; and
- Will support our students with scholarships from charitable foundations thus reducing the need to pay stipends.

We intend to have an intake of no more than 10 students per year creating a steady state of 40 students in the program, which is comparable to the numbers in the PhD in Finance at UNC Charlotte. At this level, we will generate 8 FTE of student credit hours based on the incremental funding model. It is anticipated that half of these students will receive some sort of externally financed stipend, while the remainder will pay tuition at the out of state rate. This rate is very competitive with executive doctorates being offered at other accredited schools and we expect that this will not deter our target student body.

18. Are other UNC campuses currently serving the need identified in your revised mission proposal?

No. The only other institution where doctoral students can study entrepreneurship in North Carolina is UNC Chapel Hill's PhD program in Business Administration, where a concentration in Strategy and Entrepreneurship (also referred to as the PhD in Strategy and Entrepreneurship) is offered.

The program at Fayetteville State University does not duplicate the Chapel Hill program because of several factors. First, UNC Chapel Hill accepts a limited number of students with the aim of “training scholars to produce high quality research as faculty members at top universities.” Over the past six years, UNC Chapel Hill has accrued an excellent placement record with students gaining employment at flagship research universities including, the universities of Alabama, Arizona, Hawaii, and Illinois. However, the program only graduates one or two students each year from the Strategy and Entrepreneurship concentration whereas Fayetteville State’s exclusive focus on Entrepreneurship implies that the School will have a larger number of graduates in the entrepreneurship discipline.

Fayetteville State recognizes the need to train doctorates to work at universities and colleges that have not attained Tier 1 status. The program at Fayetteville State University program will be very rigorous, but will specialize in training faculty members to succeed at a wide range of business schools as Practice Academics.

FSU will focus on applied entrepreneurship, preparing individuals with the skills, aptitudes and knowledge to teach skills and knowledge that people can use to foster an entrepreneurial mindset and have an economic impact. We expect to attract mid and late career professionals who have relevant work experience in entrepreneurship. No AACSB school offers such a program today.

19. Would a joint effort undertaken in concert with other UNC campus programs more efficiently meet the needs your proposed mission expansion seeks to serve?

Fayetteville State University plans to offer the majority of the instruction on campus and allow students to take a certain number of credits (likely up to 9) from the Masters in Entrepreneurship at Western Carolina University or visiting professors from other campuses in the UNC system. We will also invite professors from Western Carolina University or elsewhere in the UNC to serve on dissertation committees if they desire. The universities in the system with the most active programs in entrepreneurship are: Western Carolina University (the only campus with a Masters in Entrepreneurship), UNC Chapel Hill, and UNC Greensboro.

20. Have you consulted other UNC campuses about such cooperative efforts? If so, provide the specifics of those consultations and the outcome of the consultations.

Fayetteville State has discussed this potential partnership with Western Carolina University’s Dean of the College of Business, and the Department Chairs of: (1) The Department of Entrepreneurship, Sales and Marketing, and Hospitality and Tourism and (2) The Department of Accounting, Finance, Information Systems, and Economics, and all have expressed a strong interest in this partnership. Fayetteville State University will forge a more formal relationship with all of the campuses listed above once it gets permission to plan the program.

a. Do you anticipate that the change in mission will result in more collaborative activities with other UNC campuses? Be specific.

Yes, the philosophy of the program is to be as collaborative as possible. One of the endowed chairs will fund a seminar series to bring leading scholars to campus to discuss their work and we will arrange for invitations to all interested faculty in North Carolina. Attendance at these seminars and other events with our students will expand collaborations across the state. As research on entrepreneurship at Fayetteville State University increases, the potential for collaboration increases.

21. Has your campus considered online instruction from another UNC campus or non-UNC campus to satisfy instructional needs the proposed change in mission is designed to address? Is it feasible to use online instruction for this purpose?

The new doctoral program in entrepreneurship will be offered on campus and currently no accredited university offers such a doctorate online. Although we would be open to looking into different online instruction methods in the future, the current plan is to have the program on campus similar to all other doctoral programs in entrepreneurship at accredited universities.

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C. North Carolina Central University

Questionnaire for the Campuses Proposing Significant Mission Change

Answers to these questions must be returned no later than October 11 to Samantha McAuliffe in the Office of the Senior Vice President for Academic Affairs as a Word attachment.

1. Explain why your campus is proposing to alter its mission? What are the benefits to stakeholders?

Since the last revision to our mission statement, July 2004, a doctoral program in Integrated Biosciences was approved by the Board of Governors in July of 2011. The doctoral program in Integrated Biosciences began in Fall of 2012 and is in its second year of operation. The revision was done to update the mission to include the doctoral program offering.

The benefits to stakeholders are: The development of research to lead to discovery of new drugs to prevent and eliminate diseases; promotion of better health among selected populations; and dissemination of information to policy makers to use in their decision making to create policies that address health disparities. The Ph.D. degree program in Integrated Biosciences will prepare researchers and scholars in biological and pharmaceutical sciences to address those benefits.

2. Is the proposed mission aligned with the University of North Carolina System Mission? Explain with some precision how it fits within that mission.

Yes, the proposed mission is in alignment with the University of North Carolina System's Mission. The focus on teaching, research, and service in the proposed mission statement is in line with the strategic directions which reflect the UNC-System's deep commitment to teaching, research, and public service. The proposed mission speaks to how NCCU prepares students to be global leaders and practitioners who transform communities through the teaching, research, and service it provides.

3. Does the proposed mission change advance the five year strategic plan, Our

Time Our Future, adopted by the Board of Governors in February, 2013? In what ways?

- a. Which goals are furthered by the proposed mission revision? How?

The proposed mission does advance the "Our Time, Our Future Strategic Directions for 2013-2018." Specifically the proposed mission includes the doctoral program recently approved and in its second year of operation; how teaching, research, and service prepare our students for careers in the global community; how students are engaged as problem solvers and the specific kinds of research conducted which enhance the quality of life for individuals, families and communities. The goals which the proposed missions advance are: Setting degree attainment goals responsive to state needs; strengthening academic quality, and serving the people of North Carolina.

The addition of the doctoral program indicates how the University takes seriously; embracing changes to strengthen and sustain what the citizens of North Carolina have built over the years.

- b. Which strategies and action steps are enhanced by the mission alteration? How?

The process of revising the mission statement was a University wide endeavor. Faculty, student, staff, administrators, alumni, Board of Trustees worked together strategically to revise the mission statement. Through this process, lessons were learned from past work on former mission statements and everyone was impelled to take a much deeper look at what could be not just what had been or is now.

The mission alterations followed the University's Strategic Plan which is consistent with the UNC-System's Strategic Directions. The strategic priorities of the University were the benchmark for the proposed mission statement. Those priorities include: Enhancement of retention and graduation rates, Academic distinction and distinctiveness; Community engagement, service, and outreach; Effective communication and quality service; and Enhancement of teaching, learning, research, and service.

4. If the mission change you propose is granted, what new degree programs, and at what levels, might your campus propose within the next five years? The next ten years?

- a. Programs are being planned now to meet the recommendations of the Comprehensive Program Review. Included are the following:

Computer Science and Information Systems Blended Degree; Online Master's Program in Career Counseling, and Master's Program in Interdisciplinary Studies. Demand analyses have been conducted and the demand is there. In the Career Counseling program, more students apply that can be served by the current face-to-face program. Surveys indicate requisite numbers of 30 students. Up to 75 students have expressed interest in the blended computer science program. The interdisciplinary program survey indicated interest from 25 students at the time conducted in 2010.

Within the next ten years? None at this time.

- a. What is the evidence that an adequate demand exists for the graduates, research, or services that the new programs or activities might produce?

In regard to the doctoral program started in 2012-13, six students enrolled, for Fall 2013; four students enrolled. The total enrollment in the doctoral program is now 10. The new emphasis on Integrated Biosciences focusing on doctoral training in health disparities will address the overwhelming evidence from research data produced by the UNC Tomorrow document, National Institutes of Health, North Carolina Office of Minority Health and Health Disparities, and the Center for Disease Control and Prevention. The data show the strong need and demand on state, regional, and national levels for biological research that can lead to the discovery of new drugs to prevent and eliminate disease; promote better health among disadvantaged populations; and provide data to policy makers to inform their decisions in creating policies that address health disparities.

- b. What is the evidence of the economic/social need for the programs that might result from altering your campus's mission?
 The technological and scientific areas are advancing at a pace that requires constant updating and retooling. The doctoral program in Integrated Biosciences provides an opportunity for students to be current in the field which will make them highly competitive graduates.

- c. Provide evidence that there are sufficient numbers of qualified students who wish to enroll in new programs who are not being served adequately in other programs in the UNC system.

There is not another doctoral Integrated Biosciences degree program in the UNC-System.

5. The main reason for revision of the mission of NCCU is the inclusion of a doctoral degree program it now offers. The new doctoral program at NCCU is the Ph.D. Degree in Integrated Biosciences which began in Fall, 2012. NCCU has adequate resources required to deliver high quality doctoral education and training for the new degree.
- a. Faculty: Data on faculty already employed who have the requisite education and credentials to support the doctoral program in Integrated Biosciences are given in the following.

NAME		ACADEMIC DEGREES
Yolanda Banks Anderson	Pf	Ph.D., Environmental Science and Engineering University of North Carolina Chapel Hill M.S., Environmental Health Sciences Harvard School of Public Health
Emmanuel Modesto Awumey	Asst Pf	Ph.D., Pharmacology M.Sc., Pharmacology University of Alberta, Edmonton, Canada
Antonio Baines	Asse Pf	Ph.D., Pharmacology and Toxicology University of Arizona - Tucson
John J. Bang	Pf	Ph.D., Environmental Science and Engineering University of Texas at El Paso M.D., Central America Health Science University University of Illinois at Chicago, College of Medicine
Igor Bondarev	Asse Pf	Ph.D., Theoretical and Condensed matter Physics Belarusian State University, FSU (former Soviet Union) D.Sc., Belarusian Academy of Sciences, FSU
John Clamp	Pf	Ph.D., Zoology North Carolina State University
Gregory Cole	Pf	Ph.D., Biology Florida State University
Delores Grant	Asse Pf	Ph.D., Experimental Pathology University of North Carolina Chapel Hill, NC M.S., Biological Science Bowling Green State University
Gail P. Hollowell	Asse Pf	Ph.D., Molecular Biology Howard University M.S., Microbiology Howard University

NAME		ACADEMIC DEGREES
Gordon Ibeanu	Assc Pf	Ph.D., Cell and Molecular Biology Atlanta University
Ping-An Andy Li	Pf	Ph.D., Neurobiology University of Lund, Lund, Sweden M.D., Medicine Ningxia Medical College Yinchuan, China
Gaolin Z. Milledge	Asst Pf	Ph.D., Computer Science Florida International University M.S., Mathematics with a concentration in Bioinformatics, University of Memphis, M.S., Environmental Biology The Chinese Academy of Sciences, China B.E., Biomedical Engineering Huazhong University of Science & Technology, China
Somnath Mukhopadhyay	Assc Pf	Ph.D., Biochemistry University of Calcutta
Veronica C. Nwosu	Assc Pf	Ph.D., Microbiology Wayne State University M.S., Microbiology Roosevelt University
Mildred A. Pointer	Assc Pf	Ph.D., Physiology Wake Forest University School of Medicine
John E. Scott	Assc Pf	Ph.D., Microbiology & Immunology Duke University
Catherine Silver Key	Assc Pf	Ph.D., Microbiology and Immunology University of North Carolina Chapel Hill, NC
Darlene Taylor	Assc Pf	Ph.D., Physical Chemistry Minor, Analytical Chemistry University of North Carolina Chapel Hill
Alade Tokuta	Pf	Ph.D., Electrical Engineering/Computer Science University of Florida MSEE, Electrical Engineering Duke University
R.N. Uma	Pf	Ph.D., Computer Science Polytechnic University MS Computer Science Indian Institute of Science Bangalore, India
Branislav Vlahovic	Pf	Ph.D., Materials Science and Engineering M.S., Nuclear Physics and Physics of Elementary Particles University of Zagreb Zagreb, Croatia
Alfred L. Williams	Assc Pf	Ph.D., Organic Chemistry North Carolina State University

NAME		ACADEMIC DEGREES
Daniel Williams	Assc Pf	Ph.D., Microbiology North Carolina State University M.S., Biology North Carolina Central University
Kevin P. Williams	Pf	Ph.D., Biochemistry University of Cambridge, UK
Jiahua Xie	Asst Pf	Ph.D., Biophysics B.S., Agronomy Zhejiang University Hangzhou, China
Liju Yang	Assc Pf	Ph.D., Biological and Agricultural Engineering University of Arkansas M.S., Analytical Chemistry Zhejiang University (formerly Hangzhou University)
Li-An Yeh	Pf	Ph.D., Biochemistry Purdue University M.S., Chemistry Kent State University
Weifan Zheng	Pf	Ph.D., Medicinal Chemistry University of North Carolina Chapel Hill

b. Facilities and Equipment:

Buildings that are central to the Ph.D. in Integrated Sciences program at NCCU are:

Mary M. Townes Science Complex (MTSC): 120,000 square feet of research laboratories and state-of-the-art instructional facilities

Julius L. Chambers Biomedical Biotechnology Research Institute (BBRI): 40,000 square feet facility of basic research space which includes eleven contemporary research laboratories; warm and cold rooms; tissue culture facilities; state-of-the-art research cores to support bioinformatics, transgenic zebra fish and histopathology needs; two meeting rooms with Smart Boards and a 100-seat auditorium with full motion video conferencing capabilities.

Animal Resource Center: 8,000 sq ft Animal Resource Complex (ARC) located in the JLC-BBRI; 200 sq ft procedure/surgery suite in the BRITE facility; and an approximate 235 sq ft zebra fish facility located at the North Carolina Research Campus in Kannapolis, NC.

Bio-manufacturing Research Institute and Technology Enterprise (BRITE): 52,000 square-foot state-of-the-art facility with classroom, office space, and laboratory space to conduct applied research in areas related to bio manufacturing and biotechnology with common equipment rooms and core laboratories typical of those found in biotech companies

Core Research Facilities:

The Bioinformatics Genomics and Computational Chemistry Core (BGCCC) provides computational tools used in molecular biology, genetics/genomics, biochemistry, and pharmacology applications. The in silico facilities offered by this core

include: protein modeling and dynamic simulations; gene expression and meta- analysis; data mining; and method development.

Diagnostic and Molecular Histopathology Facility (DMHF)

Leica RM2135 Microtome
 HM 505E Microm Cryomicrotome,
 ThermoShandon Cytospin 4
 centrifuge TP 1020 Tissue Processor
 Leica EG 11SOH Paraffin Embedding Station
 Leica XL Auto-stainer
 Light Microscope with digital imaging system (Zeiss and Nikon)
 Fluorescence Microscope (Nikon and Zeiss)
 Confocal Microscope (Zeiss LSM510)
 Real-time PCR system (Applied Biosystems
 7900HT)
 Complete set-up for histochemistry, immunohistochemistry and in situ hybridization.

Drug Discovery Core Facility – Assay development and high throughput screening (HTS) for drug discovery. The drug discovery core is a state-of-the-art HTS facility with over 450,000 compound small molecule chemical libraries. The core features industry standard equipment including fluorescent and luminescent readers such as PheraStar Envision, Victor, Microbeta, Spectramax384, and FLIPR Tetra. Liquid handling is accomplished with a Beckman Coulter Biomek NX, Biomek 3000, Biomek 2000, and Tecan Aquarius 384 multichannel pipettor.

Protein Expression, Purification and Formulation Core Facility – Capable of expressing and purifying large quantities of recombinant proteins for biopharmaceutical research and investigating protein stability/aggregation using advanced techniques such as differential scanning calorimetry, self-interaction chromatography, dynamic light scattering, circular dichroism, etc.

Imaging Core Facility – For high-resolution imaging of biological samples, including fluorescence microscopy, confocal microscopy, DIC, Widefield, etc.

Monoclonal Antibody Production Core Facility – For production of monoclonal antibodies to be used in research and formulation studies. This Core generates and purifies monoclonal antibodies. Equipment includes a Fluorescence Activated Cell Sorting (FACS) system for the selection of high-affinity clones.

The library holdings are adequate for the Ph.D. degree program. The James E. Shepard library holds over 1900 print journals, magazines and newspapers and more than 120,000 government documents. Beyond its print collection, the library subscribes to over 225 electronic databases which provide students with 24/7 access to over 25,000 electronic full-text journals and books. The current library facility is approximately 102,000 square feet and maintains a collection of over 420,000 print volumes. Access is also provided to over 2000 scientific journals through subscribed databases, Triangle Research Libraries Network

(TRLN), or interlibrary loan.

Selected discipline-specific and topic-related databases to support the multidisciplinary Integrated Biosciences degree program include the following:

Biomedical and Pharmaceutical Sciences

Biomedical and Pharmaceutical Sciences

Journals at Ovid, Biosis Previews, PubMed Central, PubMed, Genamics Journal Seek, Science Direct, and Digital Collections (via NLM databases)

Pharmacology

Health Source Nursing Academic Edition (Contains *Lexi-PAL Drug Guide*), *Journals at Ovid, PubMed, Science Direct, and Daily Med* (via NLM databases)

Biology

Science Direct, PubMed Central, Genamics Journal Seek, Journals at Ovid

Chemistry and Medicinal Chemistry

ACS Publications, SciFinder Scholar, Current Chemical Reactions, Index Chemicus, Science Direct, Genamics Journal Seek, Chem!D Plus, PubChem (via NLM databases) Chemo-Informatics

IEEE Xplore, PubChem (via NLM databases), *Science Direct*

Biochemistry

Biosis Previews, ACS Publications, SciFinder Scholar, Current Chemical Reactions,

Index Chemicus, Science Direct, Genamics Journal Seek

Neuroscience

Science Direct, Journals at Ovid

Bioinformatics

Health Science: A Sage Full-Text Collection, CINAHL with Full-Text

Agricultural Biotechnology

CAB Abstracts, Genamics Journal Seek, PubMed Central

Health Disparities

PubMed, Journals at Ovid, CINAHL with Full-Text

Cancer Research

PubMed, Web of Science, Cancer Chromosomes (via NLM databases),
Cancer Information (via NLM databases)

Cardiovascular Metabolic Research

PubMed

Nutritional Research

Genamics Journal Seek, Health Science: A Sage Full-Text Collection, Journals at Ovid

5. Does your campus have the resources required to carry out the proposed mission and the new degrees that might be justified under that new mission?

The main reason for revision of the mission of NCCU is the inclusion of a doctoral degree program it now offers. The new doctoral program at NCCU is the Ph.D. Degree in Integrated Biosciences which began in Fall, 2012. NCCU has adequate resources required to deliver high quality doctoral education and training for the new degree.

- a. Faculty: Data on faculty already employed who have the requisite education and credentials to support the doctoral program in Integrated Biosciences are given in the following.

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Gaolin Z. Milledge	Asst Pf	Ph.D., Computer Science Florida International University M.S., Mathematics with a concentration in Bioinformatics, University of Memphis, M.S., Environmental Biology The Chinese Academy of Sciences, China B.E., Biomedical Engineering

NAME		ACADEMIC DEGREES
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Somnath Mukhopadhyay	Assc Pf	Ph.D., Biochemistry University of Calcutta
Veronica C. Nwosu	Assc Pf	Ph.D., Microbiology Wayne State University M.S., Microbiology Roosevelt University
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R.N. Uma	Pf	Ph.D., Computer Science Polytechnic University MS Computer Science Indian Institute of Science Bangalore, India
Branislav Vlahovic	Pf	Ph.D., Materials Science and Engineering M.S., Nuclear Physics and Physics of Elementary Particles University of Zagreb <u>Za2:reb, Croatia</u>
Alfred L. Williams	Assc Pf	Ph.D., Organic Chemistry
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		North Carolina State University Ph.D., Microbiology
Daniel Williams	Assc Pf	North Carolina State University M.S., Biology North Carolina Central University
Kevin P. Williams	Pf	Ph.D., Biochemistry University of Cambridge, UK
Jiahua Xie	Asst Pf	Ph.D., Biophysics B.S., Agronomy Zhejiang University Hangzhou, China
Liju Yang	Assc Pf	Ph.D., Biological and Agricultural Engineering University of Arkansas M.S., Analytical Chemistry Zhejiang University (formerly Hangzhou University)

NAME		ACADEMIC DEGREES
Li-An Yeh	Pf	Ph.D., Biochemistry Purdue University M.S., Chemistry Kent State University
Weifan Zheng	Pf	Ph.D., Medicinal Chemistry University of North Carolina Chapel Hill

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Diagnostic and Molecular Histopathology Facility

(DMHF) Leica RM2135 Microtome
 HM SOSE Microm Cryomicrotome,
 ThermoShandon Cytospin 4 centrifuge
 TP1020 Tissue Processor
 Leica EG1150H Paraffin Embedding
 Station Leica XL Auto-stainer

Light Microscope with digital imaging system (Zeiss and Nikon) Fluorescence Microscope (Nikon and Zeiss)

Confocal Microscope (Zeiss LSM510)

Real-time PCR system (Applied Biosystems 7900HT)

Complete set-up for histochemistry, immunohistochemistry and in situ hybridization.

Drug Discovery Core Facility – Assay development and high throughput screening (HTS) for drug discovery. The drug discovery core is a state-of-the-art HTS facility with over 450,000 compound small molecule chemical libraries. The core features industry standard equipment including fluorescent and luminescent readers such as PheraStar Envision, Victor, Microbeta, Spectramax384, and FLIPR Tetra. Liquid handling is accomplished with a Beckman Coulter Biomek NX, Biomek 3000, Biomek 2000, and Tecan Aquarius 384 multichannel pipettor.

Protein Expression, Purification and Formulation Core Facility – Capable of expressing and purifying large quantities of recombinant proteins for biopharmaceutical research and investigating protein stability/aggregation using advanced techniques such as differential scanning calorimetry, self-interaction chromatography, dynamic light scattering, circular dichroism, etc.

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Pharmacology

Health Source Nursing Academic Edition (Contains *Lexi-PAL Drug Guide*),

Journals at Ovid, PubMed, Science Direct, and Daily Med (via NLM databases)

Biology

Science Direct, PubMed Central, Genamics Journal Seek, Journals at Ovid

Chemistry and Medicinal Chemistry

A CS Publications, SciFinder Scholar, Current Chemical Reactions, Index Chemicus, Science Direct, Genamics Journal Seek, ChemID Plus, PubChem (via NLM databases)

Chemo-Informatics

IEEE Xplore, PubChem (via NLM databases), *Science Direct*

Biochemistry

Biosis Previews, A CS Publications, SciFinder Scholar, Current Chemical Reactions,

Index Chemicus, Science Direct, Genamics Journal Seek

Neuroscience

Science Direct, Journals at Ovid

Bioinformatics

Health Science: A Sage Full-Text Collection, CINAHL with Full-Text

Agricultural Biotechnology

CAB Abstracts, Genomics Journal Seek, PubMed Central

Health Disparities

PubMed, Journals at Ovid, CINAHL with Full-Text

Cancer Research

*PubMed, Web of Science, Cancer Chromosomes (via NLM databases),
 Cancer Information (via NLM databases)*

Cardiovascular Metabolic Research

PubMed

Nutritional Research

*Genomics Journal Seek, Health Science: A Sage Full-Text Collection, Journals
 at Ovid*

6. If the campus does not have the requisite facilities and equipment, what will be the cost of acquiring them? What is the campus plan for acquiring needed resources? The cost for the two doctoral faculty would be \$250,000.
7. How would the change in mission affect the assignment of undergraduate instruction on your campus? If faculty currently teaching undergraduate courses will have teaching assignments in graduate classes, how will the undergraduate classes they give up be covered?
 - a. Would class sizes decrease or increase to meet the needs of new programs? Provide budget and class size data to justify your response. No. Most of our faculty already teach both undergraduate and graduate courses.
 - b. **Would the proportion of classes taught by graduate assistants, adjuncts or other non-tenure track faculty increase or decrease? No. Provide budget and instructional assignment data to justify your response. N/A**
 - c. Would the quality of instruction improve? The University is constantly working on ways to improve the quality of instruction. Explain. Our Office of Faculty Professional Development and faculty learning communities are designed to work with faculty to improve the quality of instruction.
8. How would the change in mission affect graduate instruction on your campus?
 - a. Would class sizes decrease, increase? Justify your response. With the addition of new competitive programs, such as, the bio-integrated sciences and new online program initiatives, we anticipate growth.
 - b. Would the quality of instruction improve? Explain. The quality of instruction will continue to improve. It is our

hope that the mission will attract faculty who will come and advance the learning and research experiences of our students in the areas of biotechnological, informational, computational, behavioral, social and health sciences.

9. Explain how changes in the campus mission will impact research and technology transfer at your institution.

- a. How would the type of research conducted on your campus be affected by the change in mission?

NCCU's current research focus would not change; however, the research activities will be enhanced. In the proposed Mission Statement research is clearly identified; therefore, federal agencies and organizations that support research will recognize the institution's commitment.

- b. **How would the quality of research conducted on your campus be affected by the change in mission?**

The quality of research will be enhanced by changing the Mission Statement to include research as a focus.

Justify your response.

NCCU's has made a commitment to research in addition to teaching. This commitment will encourage all faculty members to be involved in research/scholarly activities. NCCU continues to focus on highly quality research and student success.

- c. How would the quantity of external research funding for research conducted on your campus be affected by the change in mission?

It is anticipated that research funding will increase. Research highlighted in the Mission Statement will assist NCCU in recruiting faculty persons with research interest. It is projected that current faculty members will be encouraged to become more involved in research activities. Securing the service of

faculty persons with research interest will expand the institution's ability to seek external support; therefore, increasing/expanding the quantity of research funding.

From what sources do you anticipate more external research funding?

NIH, NSF, NASA, DoD, DoE, USDA, NCBC, FDA, DoL, State Agencies, industry and foundations

How much?

Very difficult to predict

10. How would the proposed mission alteration better serve the state? Be specific. The University's mission effectively outlines key areas of statewide economic development emphasis including bio-manufacturing and technology, data services, and environment and health needs in addition to incorporating a commitment to supporting the citizens of North Carolina in our curriculum, research and community engagement plans.
11. What are the net cost benefits of the proposed change in your mission? Are the direct costs and opportunity costs associated with the mission alteration equal to or greater than the gains to the state identified by the university? Those cost benefits will be realized and reported in the future.
12. Are other UNC campuses currently serving the need identified in your revised mission proposal?
 As NCCU seeks to strengthen its position in STEM programs, it was imperative that a doctoral program be established. Currently, there are no UNC campuses offering a doctoral degree in Integrated Biosciences.
13. Would a joint effort undertaken in concert with other UNC campus programs more efficiently meet the needs your proposed mission expansion seeks to serve?
 Since no other UNC campus offers a doctoral degree in Integrated

Biosciences, collaboration with other campuses in the development of the program would be more than likely minimal; however, joint efforts would be established with other UNC campuses as we advance in the program.

14. Have you consulted other UNC campuses about such cooperative efforts? There were collaborations with other campuses in the development of the document to develop the doctoral program in Integrated

Biosciences.

- a. If so, provide the specifics of those consultations and the outcome of the consultations.
- b. Do you anticipate that the change in mission will result in more collaborative activities with other UNC campuses? Be specific.

15. Has your campus considered online instruction from another UNC campus or non-UNC campus to satisfy instructional needs the proposed change in mission is designed to address? Is it feasible to use online instruction for this purpose?

The proposed changes in the mission do not warrant online instruction from a UNC campus or a non-UNC campus. We do participate in the Language Consortium.

EXECUTIVE SUMMARY

North Carolina Central University (NCCU) requests authorization to establish a Doctor of Philosophy (Ph.D.) program in Integrated Biosciences. The Ph.D. program specifically targets complex issues associated with the pervasiveness of diseases that contribute to an unequal health burden in underrepresented populations, known commonly as health disparities. This program will provide students from varying degree discipline backgrounds with a comprehensive approach to the study of health disparity issues.

This will be achieved through a one-year core program which focuses solely on interdisciplinary health disparity research. Following completion of this integrated core training, students will then choose from one of two (2) tracks - Biomedical and Pharmaceutical Sciences in which to continue their studies and focus their research. The biomedical sciences concentration is designed for students with backgrounds and interests in biology, biochemistry, chemistry or related disciplines. The pharmaceutical sciences concentration is designed for students with backgrounds and interests in pharmaceutical sciences, pharmacology, biochemistry or related disciplines. All students will participate in a unique core curriculum consisting of an integrated approach to addressing health disparities in human diseases, responsible conduct of research, communication and problem solving, and research techniques. Students will also participate in health disparities research focused on cancer, neuroscience, and cardio-metabolic disorders as well as drug discovery and biopharmaceuticals. This program will prepare students to think critically and analytically and will prepare students to engage in collaborative multidisciplinary research. The program will be the first Integrated Biosciences Ph.D. program focusing on health disparities research and drug discovery in the State of North Carolina and among other Historically Black Colleges and Universities in the nation. This program is anticipated to begin in the 2012-2013 academic year.

NCCU is focusing on doctoral training in health disparities in order to address the overwhelming evidence from research data produced by the UNC Tomorrow Commission, National Institutes of Health, North Carolina Office of Minority Health and Health Disparities, North Carolina Health Disparities Initiative, and Centers for Disease Control and Prevention. Data showed the strong need and demand on state, regional and national levels for biological research that can:

- lead to discovery of new drugs to prevent and eliminate disease;
- promote better health among selected populations;
- be translated and be applied to health conditions that are more prevalent in disadvantaged communities; and,
- inform policy makers in their decisions to create policies that address health disparities

The proposed Integrated Biosciences Ph.D. program will prepare researchers and scholars in biological and pharmaceutical sciences to address these needs. The program also facilitates the collaboration among the faculty within the College of Science and Technology (CST), the Julius L. Chambers Biomedical Biotechnology Research Institute (JLC-BBRI) and the Biomanufacturing Research Institute and Technology Enterprise (BRITE) for the purpose of solving a common problem.

By addressing health disparities through concentrations in biomedical and pharmaceutical sciences, the Ph.D. program will entice collaborative inter-institutional and intra-institutional research undergraduate and graduate teaching, enrich student-learning experiences, and increase grant funding. The Integrated Biosciences Ph.D. program will help improve the health of many citizens in the state of North Carolina by addressing issues related to health disparities.

SACS COC

SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS
COMMISSION ON COLLEGES

August 1, 2012

Dr. Pauletta Brown Bracy
Director, University Accreditation
Professor of Library Science
North Carolina Central University
1801 Fayetteville Street

Durham, NC, 27707

Dear Dr. Bracy:

Thank you for your letter of April 30, 2012, providing information which we requested in our letter to you, dated March 30, 2012, concerning the Ph.D. in Integrated Biosciences degree program.

The faculty roster documented appropriate qualifications of faculty members scheduled to teach in the program. A list of discipline-specific learning resources which are accessible was provided.

We approve the Ph.D. in Integrated Biosciences degree program and request no further information.

Best regards,

Belle S. Wheelan, Ph.D.

President

BSW/ABC:efk

cc: Dr. Charlie Nelms, Chancellor
Dr. Mark V. Smith



Office of University Accreditation

April 30, 2012

Dr. Belle S. Wheelan President
Southern Association of Colleges and Schools
Commission on Colleges 1866 Southern
Lane
Decatur, Georgia 30033

Dear Dr. Wheelan,

In response to your letter of March 30, 2012 regarding the prospectus for the Ph.D. in Integrated Biosciences program, I am enclosing the university's response to the request for additional information as indicated.

1. A faculty roster using the Commission form available on our website, www.sacscoc.org. Please follow the instructions in completing the form.
2. A description of discipline-specific electronic library resources, both journals and related indices, supporting the program.

We expect to implement the program in Fall 2012. Your consideration of this addendum is appreciated. We look forward to your response.

Sincerely,

Pauletta Brown Bracy, Ph.D.
Director
University Accreditation Enclosure

c: Dr. Charlie Nelms, Chancellor Dr. Mark V.
Smith

D. UNIVERSITY OF NORTH CAROLINA AT WILMINGTON

QUESTIONNAIRE FOR THE CAMPUSES PROPOSING SIGNIFICANT MISSION CHANGE

NAVIGATION MENU

(click on question to access UNCW's response)

1. [Explain why your campus is proposing to alter its mission? What are the benefits to stakeholders?](#)
2. [Is the proposed mission aligned with the University of North Carolina System Mission? Explain with some precision how it fits within that mission.](#)
3. [Does the proposed mission change advance the five year strategic plan, Our Time Our Future, adopted by the Board of Governors in February, 2013? In what ways?](#)
4. [If the mission change you propose is granted, what new degree programs, and at what levels, might your campus propose within the next five years? Within the next ten years?](#)
5. [Does your campus have the resources required to carry out the proposed mission and the new degrees that might be justified under that new mission?](#)
6. [If the campus does not have the requisite facilities and equipment, what will be the cost of acquiring them? What is the campus plan for acquiring needed resources?](#)
7. [How would the change in mission affect the assignment of undergraduate instruction on your campus? If faculty currently teaching undergraduate courses will have teaching assignments in graduate classes, how will the undergraduate classes they give up be covered?](#)
8. [How would the change in mission affect graduate instruction on your campus?](#)
9. [Explain how changes in the campus mission will impact research and technology transfer at your institution.](#)
10. [How would the proposed mission alteration better serve the state? Be specific.](#)
11. [What are the net cost benefits of the proposed change in your mission? Are the direct costs and opportunity costs associated with the mission alteration equal to or greater than the gains to the state identified by the university? Please explain and provide evidence of this net benefit.](#)
12. [Are other UNC campuses currently serving the need identified in your revised mission proposal?](#)

13. [Would a joint effort undertaken in concert with other UNC campus programs more efficiently meet the needs your proposed mission expansion seeks to serve?](#)
14. [Have you consulted other UNC campuses about such cooperative efforts?](#)
15. [Has your campus considered online instruction from another UNC campus or non-UNC campus to satisfy instructional needs the proposed change in mission is designed to address? Is it feasible to use online instruction for this purpose?](#)

11.Explain why your campus is proposing to alter its mission? What are the benefits to stakeholders?

- ❖ Align the mission with the three principal ideals of the Dare to Soar vision of the University: the Journey of Learning; Love of Place; Commitment to Ideas and Innovation. These ideals also provide the structure of the university's emerging strategic plan.
- ❖ Emphasize unique dimensions of the UNCW experience including extremely high levels of faculty research and scholarship not typical of a master's comprehensive university; demonstrated extensive opportunities for undergraduate involvement in faculty research and scholarship; applied learning; and a liberal arts and sciences foundation
- ❖ Create flexibility to strategically develop and deliver doctoral education (subject to Board of Governors approval) specifically targeted to regional needs, emerging from uniquely well-positioned and adequately funded research programs, or key doctoral-level professional programs related to the needs of North Carolina and especially Southeastern North Carolina.
- ❖ Emphasize and leverage the distinctive role of the institution as North Carolina's coastal university through its commitment to community partnerships and engagement, economic development and unique and high quality undergraduate and graduate programs, especially those related to coastal and marine areas.
- ❖ Solidify UNCW's unique position at the interface between a master's comprehensive institution with the associated commitment to undergraduate education and a research institution with the associated commitment to a high level of faculty research and scholarship.

12.Is the proposed mission aligned with the University of North Carolina System Mission? Explain with some precision how it fits within that mission.

- ❖ The UNC mission charges its constituent institutions to discover, create, transmit, and apply knowledge to address the needs of individuals and society, accomplished through instruction, research and scholarship, and public service. The proposed UNCW mission dedicates our university to the comprehensive journey of learning

that integrates teaching, research, and service rather than treating them as three separate and unique goals. UNCW is well-placed to combine the commitment to undergraduate instruction that typifies a master's comprehensive institution with an extremely high level of faculty research and scholarship. This combination creates a special niche among such institutions that balances these three goals and integrates them into a single journey of learning.

- ❖ Among its official peers, this special niche places UNCW at the intersection between five Carnegie Research Universities with high research activity (producing 20 or more research doctorates per year) and twelve Carnegie Masters-Level Colleges and Universities (producing 50 or more master's degrees per year and fewer than 20 research doctorates) —a perfect position for merging the best that master's comprehensive institutions offer with the best that research universities offer in a single, comprehensive journey of learning that includes the master's comprehensive commitment to undergraduate involvement in faculty scholarship and applied learning made possible through the research university's high level of faculty research and scholarship (Tables 1 and 2).

TABLE 1
 INSTRUCTIONAL AND RESEARCH EXPENDITURES AS A PERCENTAGE OF TOTAL
 EXPENDITURES, UNCW PEER INSTITUTIONS
 (FY2010, IPEDS Data Center)

INSTITUTION	INSTRUCTION	RESEARCH	CARNEGIE CLASSIFICATION
University of Maryland-Baltimore County	36.38%	25.75%	Research
University of Maine	31.93%	24.42%	Research
The University of Texas at Dallas	38.67%	22.14%	Research
College of William and Mary	49.04%	13.15%	Research
SUNY at Binghamton	48.38%	10.07%	Research
University of North Carolina-Wilmington	49.17%	9.66%	Master's
The College of New Jersey	51.41%	8.24%	Master's
College of Charleston	51.62%	6.03%	Master's
James Madison University	56.30%	3.71%	Master's
Western Washington University	56.70%	3.30%	Master's
Murray State University	47.40%	2.36%	Master's
Rowan University	54.54%	1.91%	Master's
Towson University	45.64%	1.68%	Master's
University of Northern Iowa	43.58%	1.48%	Master's
Truman State University	61.33%	1.44%	Master's
University of Wisconsin-Eau Claire	44.74%	1.01%	Master's
California State University-Chico	47.74%	0.85%	Master's

California Polytechnic State University-San Luis Obispo	52.91%	0.80%	Master's
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TABLE 2
 UNCW PEER INSTITUTIONS
 RATIO OF RESEARCH TO INSTRUCTIONAL EXPENDITURES, 2007-2011

PEER INSTITUTION	RATIO OF RESEARCH TO INSTRUCTIONAL EXPENDITURES, 2007-2011 (from IPEDS)	2014 <u>US NEWS & WORLD REPORT</u> RANKINGS
U. of Maine	78.0%	167 th Best National Universities
Maryland - Baltimore County	66.9%	158 th Best National Universities
UT - Dallas	54.6%	142 nd Best National Universities
William and Mary	25.2%	32 nd Best National Universities
SUNY at Binghamton	19.2%	97 th Best National Universities
UNC Wilmington	19.2%	6th Top Public South Regional Universities
College of New Jersey	16.3%	1 st Top Public North Regional Universities
Coll. of Charleston	10.3%	4 th Top Public South Regional Universities
James Madison	6.0%	2 nd Top Public South Regional Universities
Western Washington	5.3%	2 nd Top Public West Regional Universities
Murray State	4.1%	8 th Top Public South Regional Universities
Towson	3.5%	11 th Top Public North Regional Universities
Northern Iowa	3.5%	2 nd Top Public Midwest Regional Universities
Rowan	3.1%	3 rd Top Public North Regional Universities
Truman State	1.9%	1 st Top Public Midwest Regional Universities
Wisconsin - Eau Claire	1.9%	5 th Top Public Midwest Regional Universities
California State U. - Chico	1.2%	10 th Top Public West Regional Universities
Cal Poly - San Luis Obispo	0.4%	1 st Top Public West Regional Universities

- ❖ UNCW competes with these institutions for high quality and accomplished faculty, who are the keys to UNCW's successes and to UNCW's dedication to involving undergraduates in faculty research and scholarship. Such faculty are attracted to universities with doctoral programs. The restraints created by UNCW's current mission statement severely limit our ability to compete for the highest quality faculty in areas and disciplines that have achieved an actual or potential level of prominence, a prominence that could be enhanced and strengthened by the appeal of select doctoral programs.

- ❖ The UNCW niche is also reflected in its commitment to maintaining the low student-to-faculty ratio that is typical of master's comprehensive institutions and their dedication to undergraduate instruction (Table 3).

TABLE 3
STUDENT-FACULTY RATIOS, UNCW PEER INSTITUTIONS
(IPEDS Data Center)

INSTITUTION	2010	2011	2012	CARNEGIE CLASSIFICATION
William and Mary	12	12	12	Research
U. of Maine Orono	16	15	15	Research
SUNY at Binghamton	21	20	20	Research
U. of Maryland - Baltimore County	20	20	20	Research
UT - Dallas	19	21	21	Research
College of New Jersey	13	13	13	Master's
Murray State	15	15	15	Master's
UNC Wilmington	17	16	16	Master's
Northern Iowa	17	16	16	Master's
Rowan	16	16	16	Master's
James Madison	16	16	16	Master's
Coll. of Charleston	16	16	16	Master's
Truman State	16	16	16	Master's
Towson	17	17	17	Master's
Cal Poly - San Luis Obispo	19	19	19	Master's
Western Washington	21	21	21	Master's
Wisconsin - Eau Claire	22	22	22	Master's
Cal State University - Chico	23	23	25	Master's

13. Does the proposed mission change advance the five year strategic plan, Our Time Our Future, adopted by the Board of Governors in February, 2013? In what ways?

a. Which goals are furthered by the proposed mission revision? How?

“Our Time, Our Future: The UNC Compact with North Carolina, Strategic Directions for 2013-2018,” provides clear guidance to the UNC institutions to address the needs of the State of North Carolina. Modifying UNCW’s mission to include select doctoral programs is UNCW’s direct response to several charges in *“Our Time, Our Future.”*

- *Set Degree Attainment Goals Responsive to State Needs: By 2018, UNC will help North Carolina to increase the percentage of state residents with a bachelor's degree or higher from 26% to 32% (and to 37% by 2025).*
- *Strengthen Academic Quality: UNC is committed to maintaining the highest academic quality and taking a leadership role in assessing student learning.*
- *Serve the People of North Carolina: Engagement in the kind of research, scholarship, and public service that makes the University an integral part of the state's economic and cultural life. UNC must also take a prominent role in meeting the health needs of an aging population and addressing the economic implications of rising health care costs.*

b. Which strategies and action steps are enhanced by the mission alteration? How?

- *Set Degree Attainment Goals Responsive to State Needs: Strategy F, Improve graduate student education: achieve “a cumulative 3% increase in masters and doctoral graduation rates across the 5 years covered by this plan.” Because graduate enrollment has actually decreased, “aggressive new investments in faculty, doctoral students, and industry-responsive masters programs . . . will be of utmost importance.”*
- ❖ UNCW's proposed mission statement foresees the addition of a restricted number of new doctoral programs that will specifically address the clearly defined and unique needs of Southeastern North Carolina. UNCW's success in recruiting graduate students to address these needs is demonstrated by an 8.38% increase in graduate enrollment for Fall 2013; first among 15 UNC institutions with graduate programs and 1 of only 5 experiencing a net increase in enrollment.

TABLE 4
FALL 2013 GRADUATE ENROLLMENTS, UNC INSTITUTIONS
(UNC Institutional Research)

University	Graduate Enrollment	Change over Fall 2012
UNCW	1,501	8.38%
UNCP	793	3.66%
WCU	1,658	1.78%
FSU	780	0.91%
UNC-C	5,066	0.30%
UNC-CH	10,757	-0.17%
NCAT	1,689	-1.40%
NCSU	9,236	-2.90%
UNCG	3,364	-3.80%
UNCSA	115	-4.20%

ASU	1,526	-5.63%
UNCA	48	-17.20%
WSSU	435	-2.7
ECU	5,380	-4.76
ECSU	85	-27.97

- *Set Degree Attainment Goals Responsive to State Needs, Strategy F, Improve graduate student education, Action Step 2: “Grow doctoral enrollment in programs aligned with state and campus strategic goals . . .”*
 - ❖ UNCW’s proposed doctoral programs are specifically and strategically aimed at state strategic goals in the areas of health and the marine and coastal sciences, as appropriate for the state’s coastal university.
 - *Strengthen Academic Quality, E-Learning, “Strengthen the link between educational programming and state workforce needs.”*
 - ❖ A significant portion of UNCW’s Doctor of Nursing Practice proposed program will be offered online to meet the needs of the potential students for the program, combined with face-to-face to enrich students learning experiences with the necessary seminars and discussions that facilitate professional role development and collegial interaction.
 - *Serve the People of North Carolina, Summary of Investments, Meet Growing Community Healthcare Needs, Grow Doctor of Nursing Programs.*
 - ❖ UNCW’s proposed Doctor of Nursing Practice program would help meet the needs of the people of North Carolina, specifically Southeastern North Carolina, by graduating forty DNP’s per year (after year four of the program). UNCW’s proposed doctorate in applied and experimental psychological science would contribute five doctoral trained psychologists annually (after year four of the program) in the areas of substance abuse treatment, cognitive aging, forensic psychology, and developmental disabilities.
- 14. If the mission change you propose is granted, what new degree programs, and at what levels, might your campus propose within the next five years? Within the next ten years?**
- ❖ Programs currently pending approval from the UNC General Administration and Board of Governors

- Ph.D. in Applied and Experimental Psychological Science (Request for Authorization to Plan granted, external reviews completed with very positive responses)
- Ph.D. in Coastal and Marine Science
- Doctor of Nursing Practice
- ❖ Five Years—These are only in the discussion stage, so little in the way of concrete or specific information about level of the program, demand, need, etc., is available.
 - Bachelor of Science, Digital Arts (Computer Science)
 - Bachelor of Arts, Portuguese (in cooperation with World Languages Consortium)
 - Bachelor of Science, Respiratory Therapy (in cooperation with UNCC and WCU)
 - Bachelor of Science, Rehabilitation Sciences
 - Bachelor of Science, Communication Sciences and Disorders
 - Master of Public Health (probable consortium program)
 - Master of Fine Arts, Film Studies
 - Master of Arts, Film Studies
 - Master of Science, Health Sciences
 - Master of Science, Exercise Science or Kinesiology
 - Master of Science, Athletic Training (to replace BS program per national movement in that direction)
- ❖ Ten Years—These are only in the discussion stage, so little in the way of concrete or specific information about level of the program, demand, need, etc., is available.
 - Master of Science, Logistics
 - Master of Science, Clinical Laboratory Sciences
 - Master of Science, Rehabilitation Sciences
 - Master of Science, Occupational Therapy
 - Doctorate, Physical Therapy

a. What is the evidence that an adequate demand exists for the graduates, research, or services that the new programs or activities might produce?

- ❖ UNCW's response to this and subsequent questions will focus on the three doctoral programs already under development and review through the UNC General Administration. The other programs under consideration are insufficiently developed to provide meaningful answers to this and subsequent questions.
- ❖ Ph.D. in Applied and Experimental Psychological Science

- The goal of the proposed PhD Program in Psychological Science will be to provide doctoral training in areas related to persistent cognitive and behavioral disorders. The major goal of the program is to generate professionals who will develop and deliver empirically-supported treatments for severe and persistent cognitive and behavioral disorders in underserved and diverse populations in North Carolina and nationally. The program will train clinical and research scientists in psychology in the areas of: (1) substance abuse/psychopharmacology, (2) dementias/cognition and aging, (3) mental illness in corrections/forensic psychology, and (4) developmental disabilities/behavior analysis. Furthermore, students will receive extensive training in cultural diversity, and will seek an appropriate level of Spanish language proficiency, thus preparing graduates to meet the needs of an important growing demographic group in our region.
- Each area of emphasis has a strong need for graduates at the present time. However, most importantly, each of these areas is projected to experience increased need for graduates in the coming years and decades. Societal need for doctoral level training in psychology is high, and there is extensive data to suggest that demand for PhD graduates in the areas we propose is especially great. In each of the four areas of emphasis, societal need for psychologists for advanced training in research and clinical skills is evident. The projected needs in each of these areas translate to very strong job prospects for our graduates. Job growth for psychologists both nationally and in North Carolina specifically, refer to doctoral-level training. According to ONET, a database created for the U.S. Department of Labor: Employment and Training Administration, job growth for Clinical Psychologists is projected to be particularly high (20-28%) through 2020. Strong job growth projections for Clinical Psychologists in North Carolina are also reported (9%). North Carolina is one of the few states that license Clinical Psychologists at the MA level (LPA), but it should be noted that talks are underway among members of the North Carolina Psychological Association (NCPA) about the possibility of ceasing the practice of licensing MA level clinical psychologists. This is likely to transpire, and this change will greatly expand the need for doctoral-level Clinical Psychologists in NC. It is important to note that each of our four areas of emphasis, as well as our Spanish language component, are likely to be in high demand and will make our graduates in particularly high demand in the coming decades. We previously tracked all job ads placed in the Association for Psychological Science Observer and the American Psychological Association Monitor, and noted that we had more than 120 openings for positions related to the four areas of emphasis. As we note in our response below, the four areas of emphasis all target areas of substantial need for psychologists and these needs are certain to grow in the coming years.
- ❖ Doctor of Nursing Practice
 - Currently the UNCW School of Nursing offers nurse practitioner education at the master's level (MSN). Nationally, nurse practitioner education (along with nurse anesthetist and nurse midwives) is moving to the doctor level, the Doctor of Nursing Practice (DNP). The

demand for the DNP graduate is related to the competencies they will possess that differ from those of the master's prepared nurse. The DNP is prepared to translate research findings into practice for program and systems changes, measure clinical and program outcomes, and lead interdisciplinary teams. These leadership abilities at the advanced practice level are described in the AACN publication, "The Essentials of Doctoral Education for Advanced Nursing Practice," in October 2006. The change from MSN to DNP is occurring across the country with 184 current programs nationwide and 100 programs in the planning stages. There are DNP programs in all 50 states with an enrollment of approximately 9,000 students during the 2010 – 2011 academic year (AACN, 2012). <http://www.aacn.nche.edu/dnp/program-schools>

- As national nursing schools, as well as UNC schools offering DNP programs, the expectation is that the MSN nurse practitioner programs will be phased out. If UNCW's MSN program, which currently has 93 students enrolled, were to be phased out, and if UNCW did not offer the DNP, how would the primary care needs of Southeastern North Carolina be met? Our five-county region definitely has embraced our nurse practitioner students and graduates as primary care providers. Without this constant supply of nurse practitioners, the health outcomes for Southeastern NC would deteriorate. UNCW has also identified that North Carolina's economy, demographics (according to the UNC Institute on Aging, North Carolina's 65 and over population will increase by over 400,000 persons per decade by 2030, reaching 2.14 million by that year), and rapidly expanding population (according to the US Census Bureau, North Carolina's population by 2030 will increase by 51.9% over the 2000 population, moving it from the 11th largest state in the US to 7th) will increase the demand for health services over the foreseeable future. Further, without 93 graduate nurse practitioner students, the UNCW School of Nursing would be significantly diminished – both in its graduate and undergraduate educational endeavors.
- In addition, the DNP is closely aligned with meeting the strategic goals of the School of Nursing, the College of Health and Human Services, and UNCW. The School of Nursing has been developing a plan to start the DNP by 2014 driven by health care needs of the region.
- ❖ Ph.D. in Coastal and Marine Science
 - UNCW has been a leader in North Carolina with respect to coastal and marine sustainability for several decades. We are recognized throughout the state, and nationally, for research on coastal issues, our outreach to coastal groups, training of students to work in coastal environments, and faculty service to state agencies and private organizations; this trend is expected to continue. Faculty and student research in areas of marine and coastal sustainability have given rise to service in areas of habitat sustainability, fisheries, mariculture, mitigation of human impacts, coastal erosion responses, and other areas of environmental interest. By this Ph.D. program, faculty will train graduates with the expertise needed to serve on state coastal regulatory and management groups. Currently

faculty serve on important committees such as N.C. Division of Marine Fisheries advisory committees, the N.C. Coastal Resource Commission, N.C. Oyster Steering Committee, and the N.C. Wildlife Commission Non-Game Advisory Committee, as well as many national organizations. Research to be performed by graduates from this program is critical to efforts within the state to develop the knowledge to sustain and restore coastal resources. State managers, NGO conservation groups, and industry will use this information in management and stewardship efforts. The marine science program at UNCW program is nationally recognized, but to maintain this stature and to pursue its mission we need to increase faculty and student research on key coastal issues; faculty outreach to management conservation and commercial interests; and training of students to wisely manage future resources. While we have an excellent Master of Science in Marine Science, there is a regional need for students at both the M.S. and Ph.D. levels. This Ph.D. program will allow our students to achieve a higher degree of expertise in scientific inquiry, skills necessary to contribute to the workforce in academia, industry, government, and private small companies. We need to continue to expand existing extramural research program to address problems of local, regional, and national importance where discoveries made have applications to coastal resource management, coastal observing, health, food, and energy.

- To meet the above goals, we propose a Ph.D. in Coastal and Marine Science. The program will provide students with an exciting new degree option that is concordant with UNCW's mission. The coastal habitats of NC contribute disproportionately to the economy of the state, and coastal counties are among the most rapidly growing counties in the state. Sustainable development of coastal resources requires sound policies based on a comprehensive understanding of the natural processes (physical, geological, chemical and biological) that shape the coast, as well as the needs of diverse stakeholders. The proposed doctoral degree will train interdisciplinary scientists who will contribute the necessary expertise to guide such policy, with a special focus on the southeast region of North Carolina.
- The Ph.D. in Coastal and Marine Science would complement, but in no way duplicate, the existing Ph.D. in Marine Biology. The Ph.D. in Marine Biology was established to provide doctoral training in the areas that encompass modern marine biology, focusing on areas of particular faculty strength: coastal and estuarine biology, crustacean biology, marine mammalogy, and molecular biology and systematics of marine organisms. Since that time, the marine science program at UNCW has evolved tremendously to where it now is integrated into the core of the University, across many disparate programs in multiple colleges. The proposed Ph.D. program will benefit a much broader range of students by taking advantage of faculty expertise at UNCW by including those in chemistry, geology, physics, economics, marine business, health, entrepreneurship, and policy, among others. Approximately half of the 100 UNCW marine science faculty are in the physical and social sciences. Marine science research takes a systems approach that encompasses biology,

chemistry, geology, geography, meteorology and physics with an overall focus on the interactions of the physical sciences within coastal and marine environments. A marine science student is expected to understand aspects of chemical, physical, geological and biological oceanography and the resulting applications of that knowledge; this is not an expectation for marine biology students. The proposed degree program would function at the interface of the biological and non-biological marine disciplines and other related fields, leading to new strategies to solve the grand challenges of the marine environment.

- UNCW has been building expertise in marine science for over three decades. Marine science at UNCW has grown and matured in the decade since the Ph.D. in Marine Biology was started in 2002. Faculty expertise has strengthened in all areas of marine science. We currently have the necessary faculty with close to 100 marine science faculty, of which 69% are currently members of the Graduate Faculty, facilities both within the Departments and the Center for Marine Science, and access to students to provide Ph.D. level students with an excellent educational experience in all aspects of marine science. For the marine science program at UNCW to meet the needs of our region and North Carolina in general, it is absolutely vital to increase our capacity to address state and regional needs through development of an interdisciplinary Ph.D. that will be inclusive of the natural sciences, business and social sciences.

b. What is the evidence of the economic/social need for the programs that might result from altering your campus's mission?

- ❖ Ph.D. in Applied and Experimental Psychological Science
 - Each of the four areas of emphasis: (1) substance abuse/psychopharmacology, (2) dementia and cognitive aging, (3) correctional and forensic psychology, and (4) developmental disabilities and behavior analysis have obvious and sustained needs for professionals with advanced training in these areas.
 - The area of substance abuse and dependence is a critical and growing problem in North Carolina as well as nationally. Of the 8.5 million people in North Carolina, it is estimated that approximately 840,000 are addicted. The estimated number of individuals impacted by this addiction is more than 4 million and the cost of untreated abuse of alcohol and other drugs is estimated at 6.8 billion dollars. A study by the RAND Corporation found that for every dollar invested in substance abuse treatment, taxpayers are saved \$7.46 in societal costs such as crime, violence, and loss of productivity. Meeting the treatment needs of substance abusers presents a significant problem at the state and national level. The proposed program is designed to address substance use, misuse, abuse and dependence through the study of basic behavioral pharmacologic processes as well as the process of treatment and recovery.

- One of the most devastating disorders experienced by older adults is dementia, a condition characterized by pervasive declines in a variety of cognitive abilities. According to a report by the Alzheimer's Association, Alzheimer's Disease (AD) affects an estimated 5.3 million Americans. Statistics show that for every 5 years beyond 65, the percentage of people with AD doubles and that approximately 25% of adults beyond 85 suffer some form of dementia (National Institute on Aging). Given its increased incidence with age, concern regarding AD is increasing as an unprecedented number of individuals reach old age. According to the National Institute on Aging the U.S. population age 65 and over rose more than 21% between 1990 and 2000 and is projected to double within the next 25 years. North Carolina's older population is projected to more than double from 2000 to 2030 with the number of individuals 85 and older increasing 150% during that same time period. Most relevant to the proposed program, Wilmington is among the small metropolitan areas showing the fastest growth in people over the age of 65 (8th fastest according to U.S. News and World Report). As a result of this demographic shift, the number of North Carolinians that will suffer from AD is projected to increase by 62% from 2000 to 2025 to a projected total of approximately 210,000 individuals aged 65 and older. Among the many implications of this increase, a critical one is the enormous burden it will place on our health care system. Total per person payments for Medicare beneficiaries age 65 and older with AD were triple the costs for those of the same age group not afflicted by the disease (Center for Health Policy Research). This rapid growth of our older population in the United States in general, and in North Carolina specifically, thus creates a critical need for research, training, and intervention focusing on a variety of psychological factors associated with cognition and aging.
- Individuals with persistent cognitive behavioral disorders (e.g., schizophrenia, substance abuse, intellectual disabilities, antisocial personality disorder) represent an ever-increasing proportion of the population residing in prisons and other correctional facilities. Nearly 2.3 million persons were incarcerated in prisons, jails, and juvenile facilities in 2010, and 7.1 million persons were under correctional supervision by that same year (Bureau of Justice Statistics). In North Carolina, the offender population has reached nearly 155,000 and is growing. According to the Bureau of Justice Statistics, more than half of U.S. prison and jail inmates are considered to have a mental health problem. NC Department of Corrections reports that vacancy rates for mental health practitioners working prisons is as high as 42% in eastern North Carolina. Therefore, demand is currently very high for psychologists within prisons and other correctional facilities, and these numbers are projected to grow in the coming years. Faculty at UNCW conduct research in a variety of areas within forensic psychology including: mental illness in corrections, correctional psychology, expert testimony, and legal decision making. Currently, no doctoral programs in NC provide training specifically in forensic psychology, and few programs nationally provide this training (American Psychology-Law Society). Students in the clinical concentration of the

doctoral program in psychology would be uniquely trained to provide evidence-based treatments that promote illness management and successful community re-entry. Students may also engage in coursework and practica to effectively train forensic assessment skills. In addition, students may develop expertise in program development and evaluation to disseminate evidence based practices nationally. Students in the research focus track may become experts in consultation and policy development/analysis, assisting courts and other aspects of the justice system.

- Autism, intellectual disabilities, and other developmental disabilities are among the most critical persistent behavioral disorders affecting children, both nationally and regionally. The Center for Disease Control (CDC) estimates that developmental disabilities affect approximately 17% of children younger than 18 years in the United States. Intellectual disabilities are the most common of the severe disabilities with an average annual rate of 9.7 in 1000 children. Of particular concern are recent trends in the prevalence of Autism Spectrum Disorder. The CDC reported that the prevalence estimates for autism has increased 78% in the last decade, and now 1 in every 88 children are diagnosed with autism. Prevalence estimates for North Carolina are even higher (1 in 70) according to the CDC. Moreover, developing children face risks over and above those associated with intellectual disabilities and autism. Of particular concern is the growing prevalence of developmental problems associated with hyperactivity, attention, and impulsivity (e.g., Attention Deficit Hyperactivity Disorder, ADHD). The CDC estimates 4.4 million youth ages 4-17 have been diagnosed with ADHD by a healthcare professional, and more than 2.5 million youth ages 4-17 are currently receiving medication treatment for the disorder. The substantial, and apparently increasing, prevalence of developmental problems such as intellectual disabilities, autism, and ADHD is reason for concern about how the needs of individuals with these disabilities will be met throughout their lifetimes. The proposed program is designed to address these problems through the study of basic behavioral processes, and the application of those processes to assessment and treatment. UNCW has nationally recognized leaders in the field of Behavior Analysis and is uniquely suited to help address regional needs in this area.
- Consequently, societal need for doctoral-level psychologists in each of these areas is very great, and is expected to grow in the coming years, and so demand for our graduates is expected to be very high. Moreover, students who graduate from the proposed program will also have extensive Spanish language training, thus preparing them to work with Hispanic/Latino populations. This represents a rapidly growing segment of the population both nationally as well as within North Carolina in particular. There is substantial need for psychologists who can work effectively with Spanish speaking populations. Like many minorities, the Hispanic population residing in the U.S. faces many challenges such as poverty, and cultural and language differences that make the population especially vulnerable to persistent cognitive and behavioral disorders such as depression and substance

abuse. Hispanic persons represent the fastest growing ethnic group in the U.S. From 1990 to 2000, there was a 400% increase in the number of Hispanic persons in North Carolina (currently approximately 5% of the population). It is projected that by 2050, Hispanic persons will represent 25% of the U.S. population—more than 100 million in total (U.S. Census Bureau). It is imperative, therefore, that we train clinical and research scientists who are prepared to work with this population.

- In each of the four emphasis areas, there is a critical need for more research. Treatment needs in each of these areas cannot be met without adequate funding, and so it is critical that we train psychologists who are best prepared to conduct research, communicate their findings to the broader community, develop and evaluate treatment programs, analyze existing policies, develop grant proposals, and engage in a variety of other duties critical to meeting the societal needs in each of these areas. Consequently, in addition to a clinical track, our program will offer a track for individuals with interest in working in one of these four areas with a focus on research training.

❖ Doctor of Nursing Practice

- A Robert Wood Johnson Foundation and the Institute of Medicine study that was reported in The Future of Nursing: Leading Change, Advancing Health (Nichols, Davis & Richardson, 2011) strongly recommended a change in advanced practice nursing education. The conclusions in the report are that a transformation of the American health system could occur by strengthening nursing care through advanced clinical preparation at the doctoral level and doubling resulting DNP graduates by 2020. The goal is to make healthcare patient-centered, high quality, seamless and affordable. These reports call for a nursing workforce that not only will provide expert direct patient care, but also will have greater preparation in leadership roles, to function as care managers and leaders in health reform (Nichols, Davis, & Richardson, 2011).
- A needs assessment of the population for the greater Wilmington area includes Bladen, Brunswick, Columbus, New Hanover, Onslow and Pender counties that have a population of approximately 660,000. The top employers for the region are the local health care systems, public school systems, industry and local businesses, and a military base. Rural employment includes farming with a large percentage of Latino workers not represented in the rural data set. The following table shows the percentages of the vulnerable populations of the very young and elderly, those living below the poverty level, those who have less than a high school education, unemployed, rural employment, and crime rate.

TABLE 5
 SOCIAL NEED FOR DOCTOR OF NURSING PRACTICE
 DEMOGRAPHIC PROFILES BY COUNTY

(http://data.osbm.state.nc.us/pls/linc/dyn_linc_topic_reports.show; <http://www.schs.state.nc.us/data/county.cfm>; <http://censusviewer.com/county/NC/New%20Hanover>)

Demographic 2008	New Hanover	Bladen	Brunswick	Columbus	Onslow	Pender
Population (2012)	209,846	35,146	112,701	58,107	190,187	54,259
Age 0-17	20%	22%	18%	23%	27%	22%
Age > 65	15%	17%	24%	16%	8%	16%
Below Poverty Level(2010)	18.1 %	22.3%	16.5%	26.9%	15.8%	16.7%
Education – Less than High School (2010)	4,168	2,434	3,441	2,725	3,414	1,998
Unemployment (2012)	9.2%	12.4%	10.6%	12.6%	8.7%	10.8%
Total Farms/ county (2007)	73	500	264	777	401	357
Crime rate/1000 people (2011)	47.81	44.2%	32.9%	47.2%	31.7%	20.2%
Race/% of population (2010)						
White	79.09%	56.28%	83.02%	61.51%	72.06 %	76.14%
Black	14.76%	34.86	11.44%	30.49%	18.48%	17.75%
Indian	0.5%	2.12%	0.71%	3.18%	0.74%	0.56%
Asian	1.19%	0.2%	0.54%	0.27%	1.68%	0.4%

❖ **Ph.D. in Coastal and Marine Science**

- The University of North Carolina Wilmington is uniquely poised within the University of North Carolina System to address complex interdisciplinary marine issues facing North Carolina in the next decade. Marine science has evolved at UNCW so that it has become woven into the very fabric of the University serving multiple departments and multiple colleges. As so powerfully stated by Chancellor Dr. Gary L. Miller (Installation, 20 April 2012), “... to be a national and global leader in demonstrating how universities can serve their regions, we must come to understand and embrace the importance of our coastal location as a powerful metaphor for many of the most significant questions of commerce, human health, nutrition, the environment and social and cultural dynamics. Our place between the Atlantic Ocean and the Cape Fear River is unique in North Carolina, but it is also representative of the most important loci of human interaction around the world. There is no complete understanding of human history, the human condition or literature and music and art in the absence of the sea.” and “UNCW must increase emphasis on marine and coastal science in graduate education ... (UNCW’s) continued leadership in these areas is prerequisite to our position as a leading coastal university.”
- The Earth’s oceans and coasts are widely recognized as dynamic and critical components of global economic, environmental and climatic health. A clear and thorough understanding of these complex, integrated global systems is essential to proper management and long-term sustainability of a habitable Earth and its resources. The U.S. Commission on Ocean Policy (USCOP) formed in 2000 (Oceans Act of 2000 – Public Law 106-256) by the President and Congress to make recommendations for a coordinated and comprehensive national ocean

policy, concluded, “Academic institutions have a responsibility to help meet future ocean-related workforce needs. Redesigned graduate programs can expose students to aspects of the marine field outside their primary focus, for example, by exposing science students to policy issues and policy students to the scientific process. Ocean-related graduate programs are well-situated to develop cross-disciplinary opportunities, partnering with other university programs (such as education, public policy, economics, communications, resource management, and engineering), or with federal facilities and private laboratories.” Advanced education in marine science provides an outstanding social and economic benefit “. . .because ocean science is fundamentally interdisciplinary, well-trained ocean professionals can find excellent careers in many areas including engineering, economics, education, law, management, policy, science, and technology.”

- In response to national, state and regional priorities for expanded capacity in marine science research and education, the University of North Carolina Wilmington is focusing on an integrative and interdisciplinary Doctor of Philosophy (Ph.D.) in Coastal and Marine Science. This program will differ from existing marine science related programs in the state in that it will take advantage of the fact that marine science is so integral to the University’s mission that it is a natural and logical extension of UNCW’s graduate program. It will place emphasis on integrating scientists from various disciplines across college and university boundaries to bring together new inter/trans-disciplinary teams to address the marine science issues that are of such paramount importance to the southeast region and the coastal regions of NC in general, as well as the southeastern US. The integrative program will combine direct observation of the environment with a systematic search for underlying processes that control it and their socioeconomic effects, investigating the ocean’s role in many of society’s most pressing challenges. Students will receive individualized training in coastal and marine science mentored by interdisciplinary teams with a broad range of marine science expertise. Students will learn to bridge the gaps, and to lead and work within teams attacking complex interdisciplinary problems. Internships in local, state, or federal governments, nonprofit organizations or industry will be incorporated, as a way to make graduates more responsive to regional and state needs. Utilization of distance education and on-line learning as a way for students to meet certain course requirements will be explored. Ph.D. in Coastal and Marine Science will emphasize innovation with a unique interdisciplinary approach complementary to more traditional programs and will enhance the ability of scientists with chemical, physical, geologic and biological backgrounds to work collaboratively in training the next generation to address ocean priorities.
- Special features or conditions make the institution a desirable, unique, and cost effective place to initiate such a degree program. The campus’ location adjacent to the Atlantic Ocean and the Cape Fear River system provides ready access to environments for both teaching and research. Boats and equipment are available to support this research and teaching activity. The coastal habitats of North Carolina contribute disproportionately to the

economy of the state, and the coastal counties are among the most rapidly growing counties in the state. Sustainable development of coastal resources requires sound policies based on a comprehensive understanding of the natural processes (physical, geological, chemical and biological) that shape the coast, as well as the needs of competing stakeholders. The proposed doctoral degree will train interdisciplinary scientists who will contribute the necessary expertise to guide such policy, with a special focus on the southeast region of North Carolina.

c. Provide evidence that there are sufficient numbers of qualified students who wish to enroll in new programs who are not being served adequately in other programs in the UNC system.

- ❖ Ph.D. in Applied and Experimental Psychological Science
 - There is a good deal of evidence to suggest that demand for this program will be very high. Demand for clinical PhD programs is extremely high across the country as well as North Carolina specifically. Published data indicate there were 216 Clinical PhD programs in the U.S., with a median acceptance rate of 26.8%% (2008). According to recent data from the Guide to Graduate Study in Psychology (APA, 2012) as well as based on data provided on the program websites, acceptance rates for clinical programs in North Carolina are quite low for doctoral programs, suggesting extremely high demand. For example, UNC Greensboro reports an acceptance rate for 2012 of only 6.7% (15 of 222 with 8 enrolling). UNC Chapel Hill reported an acceptance rate of 1.5% (6 of 402), UNC Charlotte reported 13.6% (12 of 88), and Duke reported acceptance rates of 2.1% (5 of 237). These are extraordinarily low acceptance rates, indicating that interest in graduate training in psychology far outdistance the state's current capacity to offer openings. One important issue to note relative to demand is that NC residents who are not accepted in NC system doctoral programs often resort to attending out of state for-profit professional schools that often provide inadequate training and leave the student in significant debt.
 - Encouraging North Carolina residents to leave North Carolina to pursue their educational goals may result in a permanent loss of their talents and the contributions they can make to North Carolina if these graduates of doctoral programs outside the state choose not to return to North Carolina.
 - To put this in some perspective, MA programs in psychology are always far less in demand than PhD programs, because the PhD is often necessary to achieve licensure in most states and obtain positions in academic institutions and research institutes. Yet, our MA program in psychology routinely gets between 135-165 applications each year! A survey of our own students also provides strong support for doctoral training at UNCW. A total of 122 psychology majors responded to the survey. Respondents were asked if they would

consider applying to UNCW if the department offered a PhD with options ranging from 0 (not at all) to 5 (definitely). Approximately 73% of respondents were highly interested in pursuing a PhD with scores of either a 4 or a 5 on the scale.

- Interest in doctoral training in psychology for non-clinical areas is also very strong. Across the U.S. the median acceptance rate for experimental psychology programs is 37.6%. This acceptance rate indicates that more traditional nonclinical programs in psychology remain very competitive across the U.S. However, given that our areas of emphasis (e.g., substance abuse, developmental disabilities, forensic, cognitive aging) for the research-focus students all are targeted for significant need and projected job growth in the coming years, we anticipate greater than usual student demand. Psychology is traditionally among the most popular undergraduate majors at most institutions, and so it is also important to consider that because admission minimum standards for doctoral programs in psychology are normally set quite high (both for minimum GPA and minimum GRE scores), all applicants—even those not offered acceptance—typically have quite impressive credentials. Because we plan to take only 1-3 research-focus students each year, UNCW can be highly selective in the applicants we offer admission for both the clinical-focus and research-focus tracks.

❖ Doctor of Nursing Practice

- To explore the student demand for the UNCW DNP, a needs assessment was conducted in the spring of 2012 by sending a mass e-mail to approximately 90 MSN alumni, current MSN students, graduate clinical preceptors and nurse practitioners in the southeastern region of North Carolina. The targeted nurses were also asked to forward the survey to any nurse practitioner they felt might be interested in the DNP program. Out of the 73 total respondents, 81% said they were interested in a program at UNCW and 80% already hold a master's degree. Of the 59 respondents who hold a master's degree (80%):
 - 98% were likely to attend if the program was offered on-line.
 - 93% would likely attend the program if it was offered part-time.
 - 68% would enroll if it were offered in 2013 - 2014.
 - 86.4% would continue working while attending the program.
- The potential applicant pool and job market for DNP prepared nurses are the same as the current (or predicted) applicant pool and job market for our MSN-prepared nurse practitioners. With employment rates ranging from 82 to 100% at six to 12 months after MSN completion, these data provide documentation that there is now a strong job market for nurse practitioners in Southeastern NC. The market for advanced practice nurses will only continue to rise due to the 32 million Americans soon to qualify for health care as a consequence of the Affordable Care Act.

❖ Ph.D. in Coastal and Marine Science

- The proposed doctoral program will draw students from the existing extremely successful, nationally recognized B.S. Programs in Marine Biology (over 300 students) and Chemistry and Biochemistry and strong B.S. programs in Environmental Studies (over 100 students), Geography and Geology, and Physics and Physical Oceanography and the vibrant and dynamic master's programs, such as the M.S. in Marine Science (42 students and 107 graduates) and M.S. in Marine Biology (approximately 35 students), the M.S. programs in Biology, Environmental Studies, Chemistry and Geology (approximately 20 students working on marine research projects), as well as the Masters in Public Administration with concentrations in Coastal Planning and Management, and Marine Policy and a Three-Plus-Two Environmental Science and Environmental Engineering Program (students earn a B.S. in Environmental Science (UNCW) and a B.S. in Environmental Engineering (NCSU)).
- These programs together form one of the largest populations of B.S. and M.S. students working in marine science in the US. We expect continued growth in all of these areas.
- Internal pool of candidates for the proposed doctoral program:
 - The Department of Physics and Physical Oceanography has recently added an Option in Physical Oceanography to the B.S. in Physics. This Department is also working on establishing a 5-year program that will lead to both a B.S. in Physics/Option in Physical Oceanography & M.S. in Marine Science through the existing programs. This is designed to help address the critical national need for Ph.D. students in Physical Oceanography nationwide. This program has already provided two students to the UNCW M.S. in Marine Science program (one of those students would have stayed for a Ph.D.); one to Woods Hole Oceanographic Institution; and one to Scripps Institution of Oceanography.
 - B.S. in Oceanography has been in place for 1 year and had 14 students enrolled; this program is projected to grow quickly to an enrollment of approximately 50 - 100 students.
 - M.S. in Coastal and Ocean Policy began implementation in the fall of 2013.
 - Current MS Program: there is significant interest by our current master's students in the proposed program. Faculty involved in recruiting graduate students to our M.S. in Marine Science routinely get inquiries from students who desire the type of training contained in this Ph.D., and UNCW loses many talented students who choose to go to Ph.D. granting schools each year. We surveyed the 2011 and 2012 graduating M.S. in Marine Science students (≈ 20 total or ≈ 10 /year) and $\approx 50\%$ indicated they would apply for the Ph.D. if it were available today.
 - The master's program is currently losing highly qualified and talented prospective students to universities that offer Ph.D. programs, usually in other states. These applicants include candidates with expertise and interest in physical oceanography, marine chemistry and aquaculture; the existing program in marine biology cannot accommodate these students. The M.S. Marine Science program has lost approximately

four of our most highly qualified prospective students each year for the last five years, at least in part due to the lack of an appropriate Ph.D. program for them at UNCW.

- The Ph.D. program expects to enroll ~5-10 new students per year so this student population could more than supply this need.
- Other Potential Sources of Students:
 - Coastal Carolina University: In addition to our normal recruiting at the local, national and international levels, a special effort will be made to recruit regionally. Our neighboring institution, Coastal Carolina University, is 70 miles away in Conway, SC. CCU has very large B.S. (~ 500 students) and M.S. (~ 40 students) programs in marine science and is a largely untapped recruiting resource. CCU does not have a Ph.D. Program.
 - The Consortium for Ocean Leadership (COL) is a Washington, DC-based nonprofit organization that represents 102 of the leading public and private ocean research education institutions, aquaria and industry; working to advance research, education and sound ocean policy. COL holds a biennial Ocean Science Graduate Educators Retreat (OSER). At the most recent retreat in the fall of 2012, 28 of the COL institutions estimated that they receive about 2000 applications in all of the marine sciences (M.S. and Ph.D.), with ~½ of these being in marine biology and fisheries. From this applicant pool they admitted 570 students (~20 students per program) of which ~375 (~13 per program) actually enrolled. These numbers reflect a larger demand for these programs than their present capacity. In addition, of the 12,749 graduate students in residence in 2011 – 2012, ~⅓ were in biological oceanography or marine biology, and ~⅓ in Chemical, Geological or Physical oceanography with remaining ~⅓ either interdisciplinary, marine affairs, etc. Nationally a total of 219 Ph.D. degrees were issued in 2011-2012. Using graduate data for 4 years, 2006 – 2011, a quasi, steady state model of student success was constructed showing nationally only ~ 123 students graduate with their Ph.D. in marine science (≈ 80 in chemistry, geology and physics).
- Regional and State Needs. The proposed program will focus on regional engagement and the needs of the citizens of N.C. in coastal and marine science. The North Carolina coastal system consists of about 325 miles of ocean shoreline, 23 inlets, over 5,000 miles of estuarine shoreline, and over 3,000 square miles of brackish-water estuaries and vast expanses of backwaters that are economic and aesthetic treasures. However, they are vulnerable to many threats including intense storms, oil spills from offshore supertankers, and sea level rise. North Carolina's coastal zone includes the 20 counties that, in whole or in part, are adjacent to, adjoining, intersected by or bounded by the Atlantic Ocean or any coastal sound. Areas of environmental concern include coastal wetlands, estuarine waters, public trust areas, estuarine shorelines, ocean beaches, frontal dunes, ocean erosion areas, inlet lands, small surface water supply watersheds, public water supply well fields, and fragile natural resources.

- National Ocean Policy Impact: On July 19, 2010, President Obama signed the National Ocean Policy (NOP) (Executive Order 13547). This Policy represents the first national effort to identify research priorities that address key interactions between society and the ocean. It provides guidance for building the scientific foundation to improve society's stewardship and interactions with the ocean.
- Coastal SEES Program: In response to NOP, the National Science Foundation (NSF) has a new initiative, "Science, Engineering and Education for Sustainability." As a part of this initiative, NSF has developed a new program specifically to deal with issues in the coastal zone, Coastal SEES with \$15M per year. The Coastal SEES Program seeks proposals that create inter/trans-disciplinary research teams that are exactly the focus of the proposed Ph.D. in Coastal and Marine Science. In addition, two of the goals of Coastal SEES are to (1) build a community of scholars who work in this interdisciplinary field, and (2) identify pathways by which project outcomes could be used to enhance coastal sustainability. Number (1) is exactly what UNCW has been quietly working on for 3 decades by interweaving marine science thought the entire academic program of the University. Number (2) is one of the issues that, as the coastal university, are of great interest to us regionally, as well as throughout the State. UNCW has taken its mission as the coastal university in the State of North Carolina to develop an innovative academic program that weaves marine science throughout the sciences, social sciences and humanities to advance sustainable development of the State's coastal resources and sound policies based on a comprehensive understanding of the natural processes (physical, geological, chemical and biological) that shape the coast.
- American Geological Institute's Workforce Employment Projections: (Baker, 2006): Bureau of Labor statistics indicate an overall 19% increase in all geoscience jobs between 2006 and 2016. However, trends in the supply of new graduates have not increased over the past 10 years, and there is no indication that they will increase to meet the projected demand of geoscientists by 2016. Age demographic trends indicate that the majority of geoscientists in the workforce are within 15 years of retirement age. Data from federal sources, professional societies, and industry indicate the imbalance of the age of geoscientists. The percentage of geoscientists between 31-35 years of age is less than half of geoscientists between 51-55 years old. In addition, Baker (2006) shows that data from the petroleum industry indicate the need to replace over 50% of their geoscience technical workforce within the next 10 years, representing close to 40,000 jobs. There are similar reports for all sectors of the geoscience workforce. Despite this wealth of jobs, few students are applying and taking these positions. The current production of geoscientists from US colleges and universities considered part of the potential employment pool, namely graduates with master's and doctorates, is ~1,200 per year.
- Navy and Marine Corp STEM Shortage: Facing a growing shortage of U.S. scientists and engineers, the Navy and Marine Corps are investing in programs to boost students' interest

in STEM subjects. More than 50% of current DoD Science and Technology professionals are expected to retire by 2020 (Seng, Institute for Defense Analysis, 2009). For security reasons, DoD must rely on U.S. citizens for classified technology work, which presents a unique challenge. Recognizing that a healthy science, technology, engineering and mathematics (STEM) workforce is critical to meeting the Navy and Marine Corps' greatest challenges, the DoD is committed to doubling its investment in STEM over the next 5 years. In FY 2010, the Navy portfolio included > \$54 million in direct investments as well as an additional \$20 million from DoD spread across 180 STEM programs nation-wide. An additional \$108 million invested annually to support domestic graduate students and research assistants under grants to academic institutions. These investments are significant but not sufficient, Secretary of the Navy has committed to doubling the Navy's investment in STEM over 5 years, to > \$100 million dollars.

- Bureau of Labor Statistics: projects that employment of environmental scientists and specialists is expected to grow 19% from 2010 to 2020, as fast as the average for all occupations (<http://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm#tab-6>). Heightened public interest in the hazards facing the environment, as well as the increasing demands placed on the environment by population growth, is projected to spur demand for environmental scientists and specialists. Further demand is also expected as a result of new and increasingly complex environmental laws and regulations. Most employment growth for environmental scientists and specialists is projected to be in private consulting firms that help clients monitor and manage environmental concerns and comply with regulations. More businesses will be consulting with environmental scientists in the future to help them minimize the impact of their operations on the environment.
- Integrated Ocean Observing System Needs: Ph.D.s in marine science are projected to increase over the next decade because of the national priorities for research in global climate change, ocean acidification, as well as development of an Integrated Ocean Observing System (IOOS). Congress has appropriated \$250,000,000 for implementation of this system (HR-146). On top of this, Congress has allocated ~\$320M over the next 7 years for ocean exploration and ~\$100M over the next 4 years for studies of ocean acidification, and \$60M/year for 5 years for the Coastal and Estuarine Land Conservation Program. On top of this are the billions of dollars that the U.S. is spending on climate change research.

15. Does your campus have the resources required to carry out the proposed mission and the new degrees that might be justified under that new mission?

- a. Faculty: Provide data on faculty already employed who have the requisite education and credentials needed to carry out the**

enhanced mission. If not, specify the kind and amount of investment that would be needed to build faculty necessary for such a program.

- ❖ Ph.D. in Applied and Experimental Psychological Science
 - At the current time, Psychology has a large faculty (35), and so we are prepared to fully-implement the program without hiring additional faculty. Our MA program is one of the largest in the University, with more than 80 students, and we provide our MA-level students with advanced research training. All of our students, regardless of concentration, must complete and defend a thesis. We are fully prepared to deal with the additional research and administrative responsibilities a doctoral program carries. We have been planning this PhD program since 2006, and over that time we have made faculty hires with the strategic goal of supporting a PhD program in Psychological Science. As a result, we have carefully hired top research scientists and clinical trainers in specialty areas compatible with our proposed program's four concentrations.
- ❖ Doctor of Nursing Practice
 - The SON currently has 25 doctoral prepared faculty members, seventeen of whom are members of the Graduate Faculty, and 3 of whom hold the DNP. Seven faculty have prior experience in mentoring and educating doctoral students. In fall 2012, the School of Nursing hired a full-time faculty member dedicated to clinical placement and coordination. Three additional graduate faculty positions were filled May 2013 with DNP program needs in mind.
 - The graduate faculty in the School of Nursing can support a doctoral program in nursing as they are actively involved in clinical practice, securing grant funding for programs of research, and presenting content expertise at professional conferences from the local to international levels. Grant funding over the past five years has included private funds to improve health education for children, health provider education for military veterans, community engagement to address obesity, stroke knowledge in low income women, self-efficacy and self-esteem for HIV positive women, and pedagogies to improve family health nursing courses. Other local funding has supported cultural immersions in impoverished nations, intimate partner violence research, health literacy on diabetic outcomes, support for a rural nurse run clinic, technology for learning, service learning projects for students working in vulnerable population housing, and perinatal depression research in high risk low-income women. Federal funds for graduate traineeships are routinely received each year. Dissemination of research and scholarship for the past five years includes articles in professional journals, books and book chapters, professional conference presentations, and invited lectures in the areas of adolescent health, gerontology, health care disparities,

pediatrics, HIV/AIDS, obstetrics/gynecology, family health, clinical reasoning and learning technology.

- Finally, two distinguished professorships have been recently endowed and are filled with faculty members who will be involved with the DNP program. Their specialties include gerontology and rural/underserved health that will support the mission and focus of the DNP program proposed at UNCW.
- ❖ Ph.D. in Coastal and Marine Science
 - Available Faculty--Currently of there are 94 (tenured or tenure track faculty) Marine Science Faculty (44% in Biology and Marine Biology, 10% in Chemistry and Biochemistry, 13% in Geography and Geology, 7% in Environmental Studies, 3% in Physics and Physical Oceanography, 14% at the Center for Marine Science, and 8% in other disciplines spread across the campus). 69% of the marine science faculty are members of the Graduate Faculty, over half of which (59%) are not biological faculty. Therefore, even though faculty within the Department of Biology and Marine Biology have tried to accommodate the needs of faculty in other departments, there are currently ~40 marine science faculty at UNCW who do not have access to a Ph.D. program. At least 20 of these marine scientists are prepared to supervise Ph.D. students at the present time. Many are recent hires from universities where they mentored Ph.D. candidates and new highly qualified faculty who came to UNCW expecting access to a local Ph. D. program in the near future. The Ph.D. in Coastal and Marine Science would serve their interests. In addition, a number of the marine biology faculty have interests outside of marine biology in biological oceanography and coastal/estuarine research that overlap with the program being proposed here. Therefore, UNCW faculty could easily supervise 20 Ph.D. students in the Ph.D. in Coastal and Marine Science.
 - Need for New Faculty--One gap in UNCW's faculty expertise is in the relatively new area of enhanced environmental modeling capability. We anticipate the need for additional physical oceanography faculty that will be met using internal resources and reallocating existing resources.

b. Facilities and equipment: Are the facilities and equipment (buildings, library collections, computing capabilities etc.) available to carry out the mission alteration? Please provide the specifics for each of these categories.

- ❖ UNCW has invested significantly in its physical and support services research infrastructure in support of its mission to be North Carolina's coastal university, including foci on health and marine and coastal areas. These investments directly support and enhance advanced research and graduate-level instruction in these areas.

- Shellfish Research Hatchery, an 11,000 square-foot facility completed in 2010 on UNCW's CREST campus that provides researchers a laboratory to study oysters and other North Carolina shellfish species.
 - The Center for Marine Science, a 100,000 square-foot facility completed in 2000 and expanded in 2008 on UNCW's CREST campus, provides a complete infrastructure to support research and instruction for the marine and coastal sciences.
 - The College of Health and Human Services, established in 2008 to provide an administrative focus and the organizational energy to improve the health and quality of life of individuals, families and communities in the region.
 - McNeill Hall, home to the College of Health and Human Services, completed in fall 2010 is an 80,000 square-foot facility housing research laboratories replicating a hospital's acute, critical, pediatric and maternal care units and operating and emergency rooms. It also contains an advanced Simulation Learning Center.
 - The Teaching Laboratory Building, a 120,000 square-foot facility completed in 2012 that provides the psychology program with world-class research facilities and applied learning laboratories to support an expanded mission of enhancing the quality of life and improving the quality of health support in the region.
 - The interdisciplinary MARBIONIC building, a 69,000 square-foot facility completed in 2013 on the CREST (Campus for Research, Entrepreneurship, Science and Teaching) campus that provides a research facility to assemble North Carolina's cutting-edge biotechnology under one roof, support public-private partnerships, advance new marine biotechnology discoveries and ensure the timely transfer of technology from the laboratory to the marketplace.
 - UNCW has reorganized its administrative structure and enhanced its research support services to strengthen its productivity and visibility in research and creative activity. This includes a realigned position of Associate Provost for Research and a reorganized technology transfer office to provide additional focus on innovation and commercialization. In addition, the UNCW CREST Research Park provides university researchers and business entrepreneurs the opportunity to trade ideas and spur collaboration in state-of-the-art research facilities that offer access to more than 80 Ph.D.-level scientists. On-site services at the CREST Research Park include biological screening, nutrient analysis, analytical services, synthetic chemistry, nuclear magnetic resonance, and stable isotope spectroscopy.
- ❖ Ph.D. in Applied and Experimental Psychological Science
- UNCW has also made a strong commitment to the Psychology PhD program by dedicating most of the space in the new Teaching Laboratory building to that program area. In the Fall of 2012, the Psychology Department moved into this new building, and in so doing, increased its research space threefold. These new

laboratories were designed by the individual psychology faculty to conduct cutting-edge research and to meet the needs of doctoral-level training. As a result, psychology faculty now have access to state-of-the-art teaching and research facilities that make the department ideally situated to support and train PhD level students and maintain its capacity to teach one of the largest population of undergraduate majors along with one of the largest MA-level graduate programs at UNCW.

❖ Doctor of Nursing Practice

- Current library facilities, computing and facilities would support starting the program. Library facilities from UNCW Randal Library and SEAHEC medical library are adequate. Over the first four years, the program would need four additional faculty as the program expands to capacity.

❖ Ph.D. in Coastal and Marine Science

- UNCW CREST RESEARCH PARK (Campus for Research, Entrepreneurship, Science and Teaching) is one of the most advanced biotechnology research centers on the East Coast. As CREST, the mission on the Myrtle Grove Campus expanded to include “biotechnology to product development in the health, food and energy sectors”. The park offers flexible research space for established firms, entrepreneurial start-ups, government agencies and universities focusing on biotechnology, analytical and environmental sciences, and early stage pharmaceutical research and development. The CREST Research Park campus currently includes ~180,000 sq. ft. of marine science research space: Center for Marine Science (100,000 sq. ft.), UNCW Shellfish Research Hatchery (24,000 sq. ft.); and Marine Biotechnology Building (69,000 sq. ft.)
- CENTER FOR MARINE SCIENCE (CMS)
 - CMS Vision: to be a world-class facility that supports multidisciplinary approaches to research, education, technology transfer, public service and regional engagement in the marine sciences.
 - CMS Mission: to promote education, basic and applied research, and public service in all fields of the marine sciences. The Center provides facilities and support primarily for faculty and students from the science departments at UNCW, but also for associated organizations and visiting students and scientists conducting marine science research. By providing a state-of-the-art facility, the Center fosters research programs of high quality, thereby enhancing the educational opportunities and experiences, and serving as an important regional node for technology transfer and public service.
 - CMS is dedicated to support of interdisciplinary approaches to questions in basic marine research. It was established to support the University’s marine science research activities in 2001. In addition to a small resident staff of

research faculty, faculty from the Departments of Biology and Marine Biology, Chemistry and Biochemistry, Environmental Studies, Geography and Geology, and Physics and Physical Oceanography draw research support from CMS. There are a wide variety of affiliated activities happening at CMS including: Regional Coastal Ocean Observing System (RCOOS); North Carolina Sea Grant; North Carolina National Estuarine Research Reserve (NC NEERS); Marine Biotechnology Center of Innovation, Marine Biotechnology in North Carolina (MARBIONC), Marine Quest (extensive community outreach program for public schools and adult education). CMS also supplies research support for (alphabetical): Aquaculture Facility; Aquatic Ecology Lab; Benthic Ecology Laboratory; Cooperative Institute for Ocean Exploration, Research and Technology (CIOERT); Coral Reef Research Group and Nutrient Lab; Gillings Family Foundation Student/Faculty Exchange Program with University of Southampton; Harmful Algal Blooms Lab; Lower Cape Fear River Program; and Remotely Operated Vehicle Facility.

- CMS Net Indoor Space: Facilities supporting collaboration include meeting rooms for up to 150 individuals; 34 laboratory suites (research laboratories (~550 sq. ft.) and office (110 sq. ft.) space; total ~650 sq. ft.). Facilities supporting research include fully equipped research laboratories; classrooms; marine science laboratories; autoclave and media preparation rooms; computer workrooms; a greenhouse with running seawater; a radioisotope laboratory; a stable isotope laboratory; cold rooms and walk-in freezers; temperature controlled rooms; darkroom; chemical storage and balance rooms; fireproof vault data storage; clean room; central analytic facility; sample processing rooms; aquarium room with running seawater; indoor storage; shower/locker facilities; and Core Facilities (see below).
- CMS Net Outdoor Facilities: Include a 900-foot pier with docking and research facilities on the Atlantic Intracoastal Waterway (currently being renovated and expanded via a grant from National Science Foundation to include slips for 10 vessels, including 5 boat lifts); aquarium room services; and storage units (with and without environmental control). CMS maintains 22 research vessels and specialized equipment including remotely operated vehicles, ocean environmental samplers (SBE-CTD; Acrobat Towed-Undulating Profiler), and ADCP current profilers and a variety of in situ moored instrumentation.
- CMS Core Facilities: Rather unique within the U.S. marine science community, the Center supplies University and regional (any campus with the UNC System) needs with “Core Facilities” which are available for a

fraction of the costs charged elsewhere. They include: oceanographic equipment; nutrient analyzers; NMR and LCMSMS spectroscopy; DNA sequencing; and stable isotope ratio mass spectrometry; a 900-foot pier with docking facilities for several coastal research vessels is in place on the Atlantic Intracoastal Waterway, a seawater system providing raw, filtered, and purified seawater at flow rates up to 600 liters/min; tank farm services; aquarium room services; diver support services complete with SCUBA, NITROX, and mixed-gas diving; 22 research vessels ranging in size from 13 feet to the 35-foot R/V Seahawk to the 68-foot R/V Cape Fear and specialized equipment including a Super Phantom Remotely Operated Vehicle (ROV), ocean environmental samplers (SBE-CTD; Acrobat Towed-Undulating Profiler), and an ADCP current profilers and a wide variety of in situ moored instrumentation.

- Library Facilities.
 - Locally the library facilities are more than adequate for the needs of the program. They presently support the marine science and marine biology bachelors and master's degrees, as well as the marine biology Ph. D. programs. This includes most of the major journal offerings in marine science, and additional eResources. In addition, UNCW's Randall Library is partners with the Azalea Coast Library Association; Carolina Consortium (partnership of 147 community colleges, public universities, and private institutions of higher learning in North and South Carolina); Lyrasis (partners with member libraries with an emphasis on digital content; NC Live (201 member Consortium of public and academic libraries in North Carolina); OCLC (worldwide library cooperative); and the UNC Coastal Library Consortium (Fayetteville State University, University of North Carolina at Pembroke, and UNCW).
- UNCW is partners in the Gillings Family Foundation Student/Faculty Exchange Program with the University of Southampton in the United Kingdom, home to U.K.'s National Oceanographic Center, Southampton (NOCS). This association allows easy access to the British National Oceanographic Library.
- Computational Facilities. Faculty and students have computational and networking capabilities to meet their academic needs. This includes Computer Based Training (CBT); email with a backup/archiving system; web hosting for individual, research group or departments; and computer repair services. Computer modeling groups have discipline based supercomputing centers, such and the Oceanography Computational Capability at the National Center for Atmospheric Research (NCAR); the Naval Research Laboratory Supercomputing Facility; NASA

Advanced Supercomputer Center; and the Renaissance Computing Institute (RENCI; a UNC system wide supercomputing initiative).

- Academic Research Computing (ARC) provides technology and support for research projects.
- Distance Education and Video Network Services currently supports two TelePresence Classrooms), four fully integrated distance education classrooms and multiple distributed video conferencing systems located throughout the UNCW campus, including CMS.
- Network Affiliations. UNCW's Distance Education and Video Network Services is a member of the North Carolina Research and Education Network (NCREN), the State of North Carolina Information Technology Services' Video Network (ITS-VNS) and the NLR TelePresence Research and Education Network (NLR R&E). These affiliations provide UNCW with access to a full suite of videoconferencing, web conferencing, satellite downlinks, streaming media and real-time collaboration and communications to institutions and organizations located throughout the world.

6. If the campus does not have the requisite facilities and equipment, what will be the cost of acquiring them? What is the campus plan for acquiring needed resources?

- ❖ Doctor of Nursing Practice
 - The only additional facility needed for the program is doctoral study space that will be provided by repurposing meeting room space.
- ❖ Ph.D. in Applied and Experimental Psychological Science
 - The program has sufficient facilities and equipment with no need for additional resources.
- ❖ Ph.D. in Coastal and Marine Science
 - Capital Outlay (Equipment):
 - \$100,000 EDP --- Multi-processor computer modeling system and \$75,000 -- Lab Equipment for use in laboratory courses by the program.
 - Proposed source of funding: These funds are being requested as a one-time reallocation of funds within UNCW: \$175,000 in returned overhead receipts for capital outlay.

7. How would the change in mission affect the assignment of undergraduate instruction on your campus? If faculty currently teaching undergraduate

courses will have teaching assignments in graduate classes, how will the undergraduate classes they give up be covered?

- ❖ Well-planned and targeted doctoral programs that build upon strong existing master's programs as well as areas of academic strength within the University will significantly enhance undergraduate education rather than have a net negative effect. Doctoral programs will increase opportunities for undergraduate mentorship and student involvement with scholarly activity will provide a source of informed and motivated instructors for certain introductory courses, and will not significantly lessen resources relative to new opportunities for undergraduates.
- ❖ Increased opportunities for undergraduate mentorship can occur through 3 ways: direct involvement of undergraduates in dissertation-related research, informal discussions and mentorship within the lab environment, and increased emphasis on nationally/internationally recognized, funded research. The PhD in Marine Biology at UNCW provides a good example of all three impacts. Doctoral students at UNCW have researched topics as varied as restoration of oyster reefs, marine mammal biology, muscle physiology, and neurophysiology of jellyfish. In all cases, these and other studies involve participation by undergraduates either directly assisting with the dissertation research effort or conducting related honors or directed independent study projects. All undergraduates within the Department of Biology and Marine Biology must have an applied learning experience – a research experience outside the formal classroom setting – but it can be difficult for the ~40 faculty to provide quality experiences to the almost 750 majors / pre-majors. Doctoral students, especially during the latter part of their program, are developing experts within their fields and serve as interested and enthusiastic mentors. The similarity in age and experience between doctoral students and undergraduates allows a connection not always possible with senior faculty. Doctoral students also informally mentor thorough conversations in the laboratory, lab and seminar discussion groups, and through example. More generally, the presence of a well-planned doctoral program will spur research activity, including attainment of external funding to support students. This provides significant opportunities for funded involvement of undergraduates on larger research projects and the chance for involvement in a larger research team.
- ❖ Doctoral students can also provide instructional support not necessarily available with only a master's program, especially for laboratories in science and certain social science disciplines. The availability of appropriately credentialed and expert instructors can be a significant limitation in offering courses such as lower division laboratories in the sciences. In the latter part of their programs, doctoral students generally meet accreditation standards for instructing lower division undergraduate courses, in contrast to master's students during their first year, and are often excited about the possibility of teaching courses such as lower division laboratories. Their connection with the undergraduates, knowledge of the subject,

and interest in teaching often makes them excellent instructors in the more informal setting of a laboratory. Their availability to teach allows the instruction of additional key lower division sections that often is not possible without this pool of discipline experts.

- ❖ Doctoral programs do not necessary take away resources from undergraduate instruction. In a department with a strong master's program, a doctoral program may often involve only a few additional formal, higher level courses with an emphasis on the dissertation research. These may only be taught periodically, since they can be scattered throughout the student's years in the program, and involve minimal instructional workload from faculty. This can be seen with the Ph.D. in Marine Biology, which requires four 2-3 credit formal doctoral courses in addition to seminars, research, and dissertation activity and participation in already existing master's courses. The presence of these doctoral student provides significantly more resources for instruction of undergraduate courses and undergraduate mentoring than is lost through the periodic instruction of doctoral level course beyond those already offered to master's students.
- ❖ UNCW reviews all doctoral program proposals using criteria designed to evaluate the impact the proposed program will have on undergraduate education (Criterion 4 in Table 6 below).

TABLE 6
UNCW CRITERIA FOR IDENTIFYING THE "SELECT" NATURE OF A PROPOSED DOCTORAL PROGRAM

1. CENTRALITY TO MISSION: Does the proposed program contribute to UNCW's mission?
2. CENTRALITY TO "OUR TIME, OUR FUTURE: Does the proposed program contribute to UNC's mission, as described in the "Our Time, Our Future" strategic directions plan?
3. SCHOLARLY PRODUCTIVITY OF UNIT: Is there a core faculty with the experience and achievement to support a doctoral program? <ul style="list-style-type: none"> a. Does the average number of refereed publications for core faculty over the past five years indicate an active scholarly community capable of supporting a quality doctoral program? b. Does the average number of refereed publications with undergraduate or graduate student authors or co-authors over the past five years indicate an active scholarly community that involves undergraduate and graduate students in faculty scholarship? c. Does the average amount of external contracts and grants of core faculty over the past five years indicate an active scholarly community capable of supporting a quality doctoral program?
4. RELATIONSHIP OF PROPOSED PROGRAM TO THE UNIT'S UNDERGRADUATE MISSION: How will the proposed doctoral program enhance the quality of the unit's undergraduate program and the undergraduate experience? Does the average number of semester credit hours in organized courses taught by core faculty over the past five years indicate a faculty that has the capacity to support a doctoral program without having a negative impact on its undergraduate program? Are there currently adequate course offerings to meet undergraduate program needs? Does the student-to-faculty ratio for the associated undergraduate and graduate programs indicate a program capable of supporting a doctoral program without impacting the quality of instruction for the other programs?

5. PROGRAM NEED, DEMAND, AND DUPLICATION: Does the program demonstrate a need for graduates of a doctoral program in UNCW's region of the state? Does the proposed program duplicate existing programs in North Carolina? How is the program distinctive? What opportunities exist to collaborate with other UNC institutions?
6. CAPACITY AND RESOURCES: What are the specific resources that will be needed to support the new doctoral program (business plan)? Are these resources sustainable? Does the proposed program have adequate resources to provide financial support for doctoral students?
7. RELATIONSHIP TO THE UNITS OTHER DEGREE PROGRAMS: Is the number of undergraduate degrees awarded in the program over the previous five years, if applicable, sufficient to warrant a doctoral program? Is the number of master's degrees awarded in the program over the previous five years, if applicable, sufficient to support a doctoral program?
8. ACCREDITATION: Is there an associated accreditation factor related to the proposed doctoral program?
9. COLLATERAL BENEFITS: Does the proposed program support or complement other programs at UNCW?

❖ Ph.D. in Applied and Experimental Psychological Science

- The Department of Psychology currently has more than 700 majors, making it one of the largest majors at UNCW. At the present time, in addition to 35 full-time faculty, Psychology has a large number of top-quality doctoral level part-time instructors teaching courses to its undergraduates—mostly at the lower levels (100 and 200 level courses). In a typical semester, the Psychology Department will offer more than 100 sections of undergraduate classes (108 for Fall 2013), enrolling more than 4000 undergraduate students and generating more than 12,000 undergraduate credit hours. Because the proposed PhD program will build upon an existing MA program, a large number of the credit hours that PhD students will take are already offered to MA students. In addition, much of the added hours are met by thesis and dissertation, as well as practica. As a result, the Psychology Department anticipates adding 10 new courses or approximately 2-3 new courses per semester. These teaching needs can easily be met by existing faculty. To compensate for some faculty shifting teaching responsibilities to graduate courses, Psychology plans to offer post-Masters PhD students the opportunity to teach lower-level undergraduate courses to better position themselves for job opportunities post-graduation. However, it is important to note that the 2-3 additional undergraduate courses per semester that would be taught by part-time faculty or post-Masters graduate students represents less than 3% of overall undergraduate instructional responsibilities. In other words, the impact on undergraduate instruction in terms of course offerings or class sizes will be minimal. By contrast, Psychology anticipates the benefits of PhD students in the department will be substantial. The Department of Psychology remains highly committed to, and invested in, the success of its Master's program and its undergraduate students. The costs and benefits of a PhD program were carefully weighted while developing the program because of this commitment to both

undergraduate and MA level instruction. In retrospect, the Psychology Department at UNCW went through similar soul-searching when the MA program was first developed, as there was some concern that the undergraduate program would suffer as a consequence. The department has since learned that the MA program enhanced the undergraduate program in a number of ways, and one of the more obvious ways was that graduate students provide excellent mentorship to more senior undergraduate students. The Psychology Department, as a result, has one of the most active and successful applied learning experiences for undergraduates, who assist faculty and graduate students with their research.

❖ Doctor of Nursing Practice

- Undergraduate instruction in the School of Nursing would be improved with the addition of doctoral level students who could incorporate honors students into both their capstone and clinical research endeavors. Moreover, while in-residence, the doctoral students could serve as mentors and simulation center assistants, further enhancing the learning of our undergraduate students.
- The DNP program would not take any resources from undergraduate education, based on the number of graduate faculty in the School of Nursing and the new hires the school acquired in the 2013-2014 academic year. With the DNP program housed in the school of nursing, there no negative impact across the campus. Once again, however, these experienced clinicians could enhance the learning environment if they choose to take elective courses in statistics, finance, or education. The percentage of these additional seats would be minor and negotiated with other departments across campus when the need arises.

❖ Ph.D. in Coastal and Marine Science

- We expect the new Ph.D. will have a significant positive impact on undergraduate instruction. The primary goal of the marine and coastal programs at teaching-intensive institutions like UNCW is serve to educate the next generation of citizens to think broadly about environmental issues. UNCW has embraced marine science as the signature theme for the entire university, and is explicitly reflected in traditional disciplinary areas. M.S and Ph.D. programs will bring together departmental efforts into a truly interdisciplinary program. There is a need nationally for such programs as summarized by the U.S. Commission on Ocean Policy (Oceans Act of 2000 – Public Law 106-256) by the President and Congress. We have been charged to think out of the box and make our efforts to look for cross-disciplinary opportunities. Advanced education in marine science provides an outstanding social and economic benefit “... because ocean science is fundamentally interdisciplinary, well-trained ocean professionals can find excellent careers in many areas including engineering, economics, education, law, management, policy, science, and technology.”

- We do not anticipate that a graduate program with a steady-state enrollment of ~ 20 students, spread interdisciplinary across multiple departments and schools, having a significant impact on undergraduate classes that will be noticeable when taken with the continued expected growth of the University over the next decade. We have experience with a program of this size over the last 12 years with the Ph.D. in Marine Biology.
- UNCW currently has a total of 899 faculty, 588 full-time faculty (65%) and 311 part-time faculty (35%), and 1511 graduate students, 19 Ph.D. Students in Marine Biology (1%). Comparing this to the anticipated steady state enrollment in the Ph.D. in Coastal and Marine Science of 20 students, we anticipate little to no change in the current proportions.
- Specific duties of TAs vary from one department to another. For the majority of teaching assistants, however, assignments and responsibilities fall into several categories:
 - For the majority, assisting faculty members in the instruction of laboratories, discussion sections, and recitation sections;
 - Assuming teaching responsibility for a laboratory, discussion, or recitation section of a course;
 - Assuming teaching responsibility for a classroom section of a multi-sectional course, under the close supervision of the director(s) of the course;
 - Assisting a faculty member in grading, advising, and administration necessary for a course(s);
 - Assisting in general departmental administrative duties, such as advising or the administration of community programs, workshops, etc.
- Within departments, assignments depend on the department's needs and the experience and academic qualifications of the assistant. All graduate TAs serving in any capacity are under the direction and close supervision of a regularly appointed member of the faculty.
- TAs must have 18 hours of graduate level work completed before they can be assigned as the instructor of record for any course. Beyond content expertise, full-course teaching requires knowledge of teaching strategies and procedures and an appreciation of abilities of students taking the course. Because superior teaching is so important at UNCW, all TAs are expected to attend courses or workshops on teaching provided by Graduate School and Center for Teaching Excellence, as well as training opportunities offered in the various schools or departments.

g. Would class sizes decrease or increase to meet the needs of new programs? Provide budget and class size data to justify your response.

- ❖ UNCW has used Campus Initiated Tuition Increases to maintain a historically low faculty-student ratio as a university strategic goal. The 2012-13 faculty-student ratio is 16:1 (see Table 3), which places UNCW squarely on the boundary between the high ratios of the research universities and the lower ratios of the master's comprehensives among its peers. Because UNCW's proposed doctoral programs build on existing master's programs and require few new courses, we do not project any increase in class sizes. UNCW's existing doctoral programs were approved in 2002 (Ph.D., Marine Biology) and 2007 (Ed.D., Education Leadership). In the years since the launching of these doctoral programs, UNCW's undergraduate class sizes have decreased as the result of UNCW's commitment to undergraduate education.

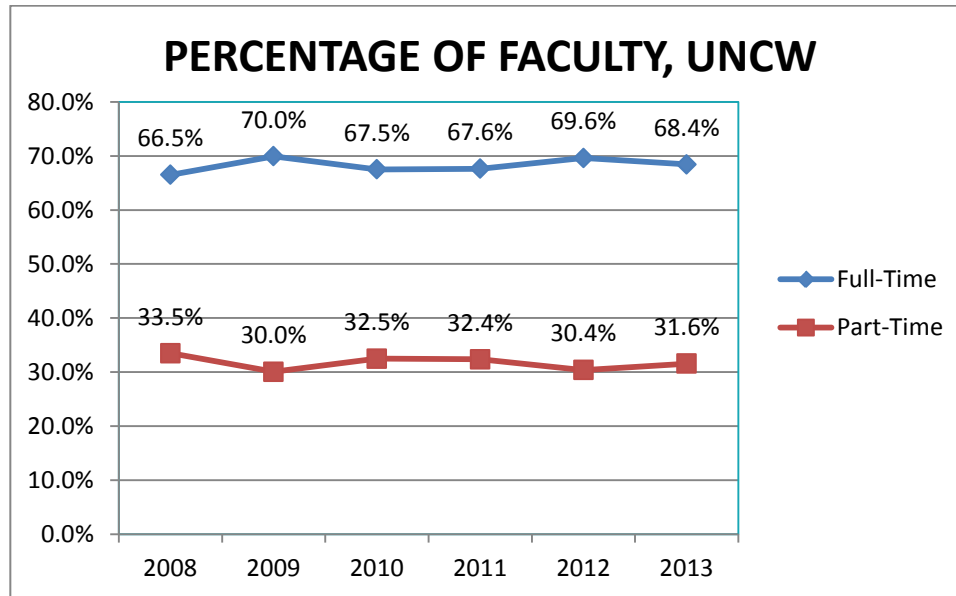
TABLE 7
UNCW UNDERGRADUATE CLASS SIZE
(Common Data Set)

YEAR	2-29	30-49	50-99	100+
2012-13	73.3%	21.0%	5.2%	0.6%
2006-07	62.3%	29.7%	6.5%	1.5%
2001-02	58.7%	32.6%	6.9%	1.7%

h. Would the proportion of classes taught by graduate assistants, adjuncts or other non-tenure track faculty increase or decrease? Provide budget and instructional assignment data to justify your response.

- ❖ The addition of the envisioned three doctoral programs is expected to make minimal use of graduate assistants for undergraduate instruction except as assistants to full-time faculty or in supporting laboratory instruction. UNCW, on average, employs 20 fully-prepared graduate assistants as instructors-of-record per year out of a total of over 250 graduate assistantships awarded in any given year. Out of the 321,420 undergraduate student credit hours generated by UNCW faculty in the 2012-13 academic year, less than 3,000 were generated by graduate assistants.

- ❖ UNCW has consistently maintained a ratio of 2:1 or greater for full-time to part-time faculty (headcount). The overwhelming factor in declines in this ratio has been budget reductions, not the impact of graduate education.



c. Would the quality of instruction improve? Explain.

- ❖ As indicated in UNCW's existing and proposed mission statement, the university is dedicated to the comprehensive journey of learning through the integration of teaching and mentoring with research and service. Key components of that journey, reflective of major changes occurring in American higher education, are the increasing emphasis on engaging students in creative inquiry, collaborative faculty-student scholarship, and applied learning. Expanded graduate programs will increase the opportunities for undergraduates to become involved in these areas, improving the undergraduate educational experience. At UNCW, doctoral programs are extensions of undergraduate programs and are synergistically integrated into its broad and comprehensive journey of learning.

8. How would the change in mission affect graduate instruction on your campus?

- Would class sizes decrease, increase? Justify your response.**
- Would the quality of instruction improve? Explain.**

- ❖ UNCW's existing and planned doctoral programs are built as extensions of existing graduate master's programs. Generally graduate classroom instruction is achieved at the master's level. Doctor preparation is achieved through individual and specialized research educational experiences. The addition of doctoral programs would have a minimal impact on graduate class sizes.
- ❖ Ph.D. in Applied and Experimental Psychological Science
 - The PhD program is anticipated to enhance the learning experience for both MA students and more senior undergraduates, as the more senior PhD students will provide excellent mentorship to their junior colleagues. Finally, our increased course offerings provide excellent educational opportunities for graduate students in related disciplines (e.g., criminology), and we have the pledged support of the Foreign Languages Department, which will welcome the increased class sizes and credit hours as our students take Spanish language coursework.
- ❖ Doctor of Nursing Practice
 - There would be little or no impact on graduate instruction because the DNP would be replacing the MSN.
- ❖ Ph.D. in Coastal and Marine Science
 - UNCW now has over 14 years of experience running an interdisciplinary M.S. in Marine Science that has produced 107 graduates to date. Each student in this program takes at least three courses in marine science offered through four different science departments, and each student committee has faculty from more than one academic unit. Many students also take courses in economics, statistics and policy. The success of the marine science program at the M.S. level is a good predictor for success at the Ph.D. level at UNCW.
 - Maximum amount of credit that a Ph.D. student may count toward a doctorate from a master's degree program is 30 semester hours, with 15 hours being devoted to their research topic. This applies whether the master's degree was earned at UNCW or elsewhere.
 - The science departments at UNCW currently offer > 130 graduate level marine science courses (courses not cross-listed as undergraduate courses) appropriate for the proposed Ph.D. program. These courses are already of high quality. M.S. in Marine Science graduates have been well trained and very successful in finding appropriate positions upon graduation. Graduates have successfully completed Ph.D. programs at prestigious universities including University of North Carolina Chapel Hill, North Carolina State University, Duke University, Purdue University, and the University of Utrecht (the Netherlands), and several are currently enrolled in Ph.D. programs across the country.
 - New graduate seminar courses will be added to curriculum. Topics will vary by semester and be interdisciplinary in nature and may include for example, marine

geochemistry, coastal geophysical processes, marine biotechnology, and biogeochemical modeling therefore drawing together a wider group of interests and expertise than normal disciplinary seminars. The seminars will be modeled after similar graduate level seminars in Department of Biology and Marine Biology, for example:

- BIO 601 - Oceanography and Environmental Science, Credits: (2-3)
 Prerequisite: BIO 564 or permission of instructor. Topics and methods in biological oceanography and environmental science. Required of all Ph.D. candidates. May be repeated under different subtitles.
- We anticipate that Ph.D. level courses will be added to cover curriculum areas of interest to faculty members participating in the Ph. D. program. In addition, several existing biology courses will be appropriate for marine science students, depending on their research areas.
- Finally, as this program will be a truly interdisciplinary degree focusing on problems of importance to the region, North Carolina and the nation, courses that are not normally taken in a marine science program such as Science and Technology of the Marine Environment, Geographic Information Systems, Ecosystem Based Management, as well as a course in coastal policy such as a Seminar in Coastal Processes and Problems and Managing Coastal Ecosystems will be suggest or required.

9. Explain how changes in the campus mission will impact research and technology transfer at your institution.

- ❖ As a master's comprehensive university, UNCW has been remarkably successful in contributing to the research mission of the University of North Carolina. With a base of eight existing and active patents (2 of which have merited acquiring patents in 19 foreign countries) and several more pending, UNCW anticipates a significant expansion of patent activity with the addition of select doctoral programs. To support an expanded role in technology transfer and business formation, UNCW has established a Center for Innovation and Entrepreneurship and an associated Private Venture Capital Fund (The Seahawk Fund) and Southeast Angel Investor Research Project. To benefit North Carolina and society in general, UNCW has established MARBIONC (MARine BIOtechnology in North Carolina) to develop new marine-based products and technologies that will lead to new industries and companies via research and collaboration, the augmentation of existing industries, and to increase a trained workforce to support marine biotechnology in North Carolina.

c. How would the type of research conducted on your campus be affected by the change in mission?

- ❖ With new, select doctoral programs, UNCW would expand its existing research in marine, coastal, nursing, and psychological disciplines. The type of research would not be affected by the change in mission to allow additional, select doctoral programs. Specific responses to this question for UNCW's three doctoral programs under development are provided below.

d. How would the quality of research conducted on your campus be affected by the change in mission? Justify your response.

- ❖ Integrating Ph.D. students into UNCW's research activities would dramatically impact the quantity and quality of research conducted. Their involvement would increase both the ability to apply for and get extramural research support. UNCW has been remarkably successful to date in achieving a high level of funded research activity through the efforts of its faculty and by developing a high level of undergraduate involvement in faculty research, but is restrained in both regards without the presence of high-quality doctoral students engaged in its research activities. Specific responses to this question for UNCW's three doctoral programs under development are provided below.

e. How would the quantity of external research funding for research conducted on your campus be affected by the change in mission? From what sources do you anticipate more external research funding? How much? Justify your response?

- ❖ Biomedical and health R&D spending has been, until recently, expanding at a rapid rate, but since 2011 has experienced a decline. Specific responses to this question for UNCW's three doctoral programs under development are provided below. According to the Information Technology & Innovation Foundation, federal R&D spending cuts will cause a shortfall in R&D spending of about \$95 billion by 2021, in turn causing a reduction in the US of up to \$860 billion over the same period. These reductions are occurring at a time when the rest of the world is increasing its investment in R&D. The addition of select doctoral programs at UNCW, especially in biomedical and health areas, would help counter the impact of this decline in available funding. The primary sources of expanded external research funding would continue to be federal sources (NSF and NIH), but for the Marine Science program, UNCW's development of MARBIONC and the Center for Innovation and Entrepreneurship will encourage expanded reliance on public-private partnerships.

f. Does your campus have the expertise in patents, business formation or other forms of technology transfer to be effective if the mission is changed? Be specific about the expertise currently available or how your campus would secure it.

- ❖ UNCW has the expertise in patents, business formation, and technology transfer to support a mission change. With a base of eight existing and active patents (2 of which have merited acquiring patents in 19 foreign countries) and several more pending, UNCW anticipates a significant expansion of patent activity with the addition of select doctoral programs. To support an expanded role in technology transfer and business formation, UNCW has established a Center for Innovation and Entrepreneurship and an associated Private Venture Capital Fund (The Seahawk Fund) and Southeast Angel Investor Research Project. To benefit North Carolina and society in general, UNCW has established MARBIONC (MARine BIOtechnology in North Carolina) to develop new marine-based products and technologies that will lead to new industries and companies via research and collaboration, the augmentation of existing industries, and to increase a trained workforce to support marine biotechnology in North Carolina.
- ❖ UNCW maintains a Technology Transfer Office in its Office of Research Services. Budget reductions over the past 5 years have reduced its effectiveness, but the development of MARBIONC and the Center for Innovation and Entrepreneurship are giving it a renewed emphasis. To support these efforts, several years ago UNCW hired a successful and established patent attorney with experience in private industry to become the Senior Technology Development Officer for the university.

g. Does your campus have the space, facilities, and equipment needed to carry out an expanded research agenda? Be specific.

- ❖ This question is answered in [Question 5](#). In sum, UNCW has the space, facilities, and equipment to carry out an expanded research agenda.
- ❖ Specific responses for UNCW's three proposed doctoral programs for Question 9.
 - Ph.D. in Applied and Experimental Psychological Science
 - The Psychology Department is already one of the most research-productive departments on campus with a strong history of sponsored research and the impact of the PhD program on our research activity is likely to be enormous. It has a large number of highly active and engaged scholars. Since the move into a new building with greatly enhanced research facilities, Psychology has added four new faculty

members, each of whom has already established themselves as major scholars in their respective areas, and two of them have come to UNCW with active grant funding. All of these individuals cited Psychology's new research facilities and its goal of developing a PhD program as critical factors in their decision to accept offers of employment at UNCW. In other words, the ability to attract and retain top-level researchers is greatly enhanced by UNCW's outstanding research facilities and the presence of research-active PhD students. One of the chief limiting factors in maintaining an active research agenda with MA-level students is that they arrive with very little research skills, and by the time they are trained to be skilled researchers they are getting ready to graduate and take those skills to other institutions for their PhD training or out into the workforce. It is in their final 2-3 years in doctoral training that these students are at their most productive as researchers, where they are truly collaborating with faculty in manuscript and grant writing, along with carrying out multiple research projects. Indeed, Psychology faculty have learned more than once that in grant proposals that were not funded the lack of a PhD program was cited as a contributing factor in the decision to not fund the proposal. Not only will the quality of their collaboration with faculty increase with a PhD program, but the number and sophistication of the projects will increase as well. With the added time working with Psychology faculty, the department anticipates not only a sizable increase in research productivity, but also an increase in the quality and sophistication of the research projects. Finally, the core areas of the program: cognitive aging, forensic psychology, psychopharmacology, and developmental disabilities are all areas that currently receive generous funding from the major granting agencies (e.g., National Institute of Health and National Science Foundation), and so a PhD program in these areas will attract students dedicated to conducting research in these specific areas. As a result, the research generated by the department will be more focused toward these areas—ones for which substantial grant dollars are targeted each year. The combination of new cutting edge facilities and doctoral program should result in at least a doubling of federal grant funds generated by the department during the first 6-8 years of the program.

- Current research facilities in the Teaching Laboratory Building at UNCW contains nearly 80,000 square feet of teaching and research space. Labs are equipped with the most advanced research materials. Consequently, the Psychology Department is extremely well-equipped to meet the enhanced research agenda that will accompany a doctoral program. Its facilities now compare favorably with research facilities present at other institutions that train doctoral-level students in psychology.
- Doctor of Nursing Practice
 - The "Clinical Dissertation" for the DNP is a critical component for matriculating through the program and requires the same type of rigor as a dissertation --

culminating in a scholarly public defense and dissemination activity. The project requires the student to demonstrate expert practice, translation of research and use of skills to lead inter-professional teams to improve population outcomes. The project committee will be comprised of one program faculty member and a community mentor. The DNP faculty will plan to organize the project due dates such that there are enough faculty devoted to assisting students toward completion of the program. The support for these scholarly projects will include the endowed professors and current graduate faculty, additional research support through the upcoming hiring for the College of Health and Human Services of an Associate Dean for Research Support, a statistician, and the creation of graduate study spaces. External funding will be sought from private donors, private foundations, and government funding agencies such as HRSA, NINR and NIH. Faculty members in the School of Nursing have experience with writing and receiving grants from these sources.

- Ph.D. in Coastal and Marine Science
 - Effect on the type, the quality, and the quantity of research conducted:
 - Access to Ph.D. students should increase both the ability to apply for and get extramural research support, but also the size and length of the programs supported. Faculty are losing out in proposing participation and collaboration of large disciplinary and interdisciplinary program for lack of Ph.D. students.
 - The MS in Marine Science is an interdisciplinary program of study designed:
 1. To provide a broad interdisciplinary understanding of marine science to students having strong undergraduate training in mathematics and the sciences, and 2. To develop skills that will enable these students to utilize this knowledge to solve complex marine environmental problems. These problem-solving skills will provide the foundation for future contributions by the graduates in marine-related industries, environmental management, teaching, research, and other marine-oriented careers. Students are prepared to undertake additional graduate study in a doctoral program.
 - The Ph. D. is intended to serve students with interests in conducting research in academia, industry, and government along with those who intend to become faculty in undergraduate teaching institutions, managers in technology-based industries and policy makers in government. Students will learn the process of identifying, defining and solving an original research problem. The program also includes a teaching practicum with classroom instruction in pedagogical techniques and technologies along with lecture experience under the guidance of a faculty mentor.
 - Extramural Research Support.

- Since the inception of the current Center for Marine Science on the Myrtle Grove Campus in 2000, the Center has received a total of \$183,667,049 in extramural research or an average of \$14,128,234 per year. Taking a snapshot for the past 5-years (2008 – 2012), 50% (40 out of 80) of the marine science faculty had funded extramural research totaling \$57,544,545 or an average of \$11,508,929 per year. Additional marine research during this period was administered by the Departments of Biology and Marine Biology, Chemistry and Biochemistry, Geography and Geology, and Physics and Physical Oceanography, but is much harder to quantify.
- Our growing reputation in marine biotechnology has earned a State appropriation of \$2M/year and resulted in the Center for Marine Science (CMS) being awarded a \$14,979,888 matching grant from the National Institute of Standards and Technology (NIST) via the American Reinvestment Act of 2009 for the construction of a new Marine Biotechnology Facility. As well as housing the University's Marine Biotechnology in North Carolina (MARBIONC) program, allowing room for expansion of CMS's research program. The final complex will be a private and public partnership catering to entrepreneurs, start-up companies and established businesses that focus on biotechnology, analytical and environmental sciences, and early stage pharmaceutical research and development.
- In addition, while the UNCW marine science faculty have attained a strong track record in mentoring master's level graduate students and getting undergraduate students involved in their research programs, it is essential for marine science faculty to have access to a Ph.D. program to be able to submit competitive scientific proposals to compete for funds from large, inter-institution, interdisciplinary programs being proposed at the regional and national level.
- Space, facilities, and equipment needed for the resulting expanded research agenda:
 - Between the academic units involved in the new Ph.D. program and the Center for Marine Science we anticipated being able to meet the space and facilities needs of the program. Any new specialized equipment needed would be handled as part of the normal hiring process for a faculty member: either as part of a negotiated startup package or purchased on the federal, state or foundation supported research proposal.

22. How would the proposed mission alteration better serve the state? Be specific.

- ❖ By emphasizing its fundamental commitment to the journey of learning, the importance of place and a commitment to ideas and innovation and by removing restrictive language regarding doctoral programming, UNCW's new, proposed mission statement places the university into position as a full partner with the Board of Governors in creating and deploying innovative and strategic programs to meet the educational, economic development and social needs of Southeastern North Carolina, a key element of the new UNC strategic plan and an essential capacity for contemporary public universities.
- ❖ UNCW is North Carolina's dedicated coastal university. Its current mission statement prevents North Carolina from taking full advantage of this unique role and the contributions UNCW can make, especially with regard to making use of coastal and marine resources and addressing the special challenges of coastal and marine areas. North Carolina, with the longest coastline in the continental United States, would be better served to exploit the resources and strengths of its coastal university.
- ❖ Many states, including North Carolina, have set bold goals to increase the number of post-baccalaureate degrees for the benefit of individuals, states, and the nation. To remain competitive as a state, UNC must address the goal of producing more doctoral program graduates. Altering the mission of UNCW to add select doctoral programs would focus the research and instructional capabilities of a proven quality institution directly at clearly identified, existing, and immediate problems and challenges facing North Carolina.
- ❖ Altering the UNCW mission to permit the addition of select doctoral programs would improve the quality of the university's undergraduate educational experiences by providing greater opportunities for undergraduate involvement in research and scholarship as doctoral students bring undergraduate students into their work. Additionally, doctoral students provide applied learning opportunities for undergraduate students, which is the basis of UNCW's Quality Enhancement Plan. UNCW would increase the quality of the baccalaureate-prepared graduates in contributes to the North Carolina labor pool each year.
- ❖ UNCW's proposed mission seeks to establish a more creative and flexible collaboration with the Board of Governors, the University of North Carolina General Administration, and all UNC institutions to develop doctoral programs as circumstances and resources present opportunities for the fulfillment of UNCW's potential in North Carolina and especially in Southeastern North Carolina.
- ❖ For the betterment of UNCW's students and graduates, and by extension the State of North Carolina, altering its mission to permit the addition of select doctoral programs would improve UNCW's competitiveness in recruiting high quality and accomplished faculty who are the keys to UNCW's successes and to UNCW's dedication to involving undergraduates in faculty research and scholarship.

23. What are the net cost benefits of the proposed change in your mission?

Are the direct costs and opportunity costs associated with the mission alteration equal to or greater than the gains to the state identified by the university? Please explain and provide evidence of this net benefit.

- ❖ In order for UNCW to continue to prosper and create and deploy nationally competitive educational programs that support emerging needs, it must be free to engage with the local, regional and state economy in full partnership with the Board of Governors. This will require the ability of the university to propose the full range of strategic programs, including a limited number of selected, well-targeted, and strategic doctoral programs, within the capacity to offer them either through existing campus resources or via public-private partnerships.
- ❖ The current restrictive mission language regarding doctoral education prevents the university from exploring unique opportunities that may be beneficial to the region and supportive of the UNC mission. That restrictive language in UNCW's current mission regarding the development of additional doctoral programs is unusual. None of UNCW's 17 approved peer institutions have such restrictive language in their mission statements. Six of these peers do not have doctoral programs, while 11 have one or more doctoral programs.
- ❖ UNCW's proposed mission anticipates a very limited number of future proposals to the Board of Governors for additional strategic doctoral programs that meet specific needs for which the university is uniquely prepared to deliver. UNCW's intention is not to change its fundamental profile and special niche as a highly selective public master's comprehensive university with a high research profile. The select and strategic doctoral programs UNCW anticipates build on currently available university resources, insuring a net cost benefit to the State of North Carolina. North Carolina will receive highly qualified Doctors of Nursing Practice to address health care shortages in the state, highly qualified Doctors of Applied and Experimental Psychological Science to address severe and persistent cognitive and behavioral disorders in the state, highly qualified Doctors of Coastal and Marine Science to address marine and coastal issues facing the state. Moreover, North Carolina will receive a core of higher education educators to prepare future generations of North Carolinians to address these continuing issues.

24. Are other UNC campuses currently serving the need identified in your revised mission proposal?

- Ph.D. in Applied and Experimental Psychological Science

- In developing our Request to Plan, the planning committee set out with three criteria that are of relevance to this issue: (1) the proposed program must train students to work in areas that will be in high demand, and (2) the program must train students in areas in which the department has nationally recognized expertise, and (3) the program must not duplicate existing programs here in North Carolina. No programs in North Carolina focus on the treatment of persistent cognitive and behavioral disorders, and the four areas of emphasis we identified are not similar to existing programs here in North Carolina. Currently we know of only four doctoral psychology programs in the nation that advertise a specialty in substance abuse and addiction treatment. There are no programs in North Carolina whose focus is on substance abuse treatment. Currently, there are few programs in North Carolina that offer programs of study on cognitive aging with a focus on empirically-supported treatments. No doctoral programs in NC provide training specifically in forensic psychology, and few programs nationally provide this training. Finally, there are currently no doctoral programs within North Carolina offering a program of specialized training in behavior analysis for intellectual disabilities, and there are only a handful of such programs in the nation. Therefore, each of our areas of emphasis represent a focus of training that would not duplicate any existing programs within the state. Moreover, none of the clinical programs within N.C. require their students to take coursework and practica specifically designed to train them to work with Hispanic/Latino populations.
- Doctor of Nursing Practice
 - The two initial DNP programs in North Carolina are both post-master's entry level programs at Duke University (started in 2008) and Gardner Webb University (started in 2010). State supported schools in North Carolina approved to start post-master's DNP programs and post-baccalaureate DNP programs in the Fall of 2013 include East Carolina University, UNC-Chapel Hill, UNC Charlotte, UNC Greensboro, Western Carolina University, and Winston-Salem State University. The closest programs to UNCW are ECU 116 miles away, Chapel Hill 164 miles away, and Duke University 156 miles away.
 - The goal of the American Association of Colleges of Nursing (AACN), and its accrediting arm (CCNE), is to phase out the MSN for advanced practice nursing and have only post-baccalaureate programs to prepare nurse practitioners (NPs), etc. Hence, if UNCW does not have a DNP program, when the MSN-level-NP is no longer accredited and our MSN program necessarily disappears, Southeastern North Carolina will be in dire straits for primary care health services. Additionally, the UNCW School of Nursing would suffer an insurmountable loss to all of its programs, including undergraduate nursing

education, if its current MSN enrollment of 93 Nursing Practice students disappeared.

- Ph.D. in Coastal and Marine Science
 - UNC System capabilities in marine science, for sound fiscal, educational and scientific reasons, are physically distributed across campuses and across NC's diverse coastline. This presents both a strength and an opportunity. The southern region is served by UNCW's Center for Marine Science that focuses on the Cape Fear River Estuary, adjacent lagoonal sounds, the extensive tidal creeks of southeast North Carolina, and coastal ocean areas. The central region is served by NCSU's Center for Marine Science and Technology, UNC's Institute for Marine Science and Duke University's Marine Laboratory, which support access to extensive sea grass communities, and the unique habitats of Bogue, Core and Pamlico Sounds, as well as the Pamlico and Neuse Rivers. ECU and the Coastal Studies Institute in Manteo serve the northern region with access to Albemarle Sound as well as the Chowan and Roanoke Rivers, which together encompass a complex of unique ecosystems. The southeastern region of NC is therefore the only region without resident Ph.D. students conducting research in all the disciplines of marine science.
 - The University of North Carolina at Chapel Hill has a Ph.D. in Marine Science that is housed within the Department of Marine Sciences. Students in that program follow a pathway of core courses in biological oceanography, chemical oceanography, marine geology, physical oceanography before embarking on research within one of those sub-disciplines.
 - North Carolina State University has a Ph.D. in Marine, Earth, and Atmospheric Sciences. The program is historically founded in the geosciences and the marine component follows a disciplinary approach. Students receiving a Ph.D. in MEAS in the marine area specialize in biological, chemical, geological, or physical oceanography
 - The proposed Ph.D. program for UNCW is substantively different than those of UNC Chapel Hill and North Carolina State University. Our proposed Ph.D. program will be inherently interdisciplinary both in required courses, scope and focus of research areas, and with requirements for both teaching and internships. It will place emphasis on integrating scientists from various disciplines across college and university boundaries to bring together new inter/trans-disciplinary teams to address the marine science issues that are of such paramount importance to the southeast region and the coastal regions of North Carolina in general.
 - East Carolina University offers a Ph.D. in Coastal Resources Management to help meet the need for scientifically trained specialists able to move effectively between the worlds of coastal research, policy, and management. This program provides the academic basis for students seeking resource management careers in government

agencies, private firms, nonprofit organizations, and interdisciplinary educational programs.

- The proposed Ph.D. program for UNCW would provide a science-based alternative at a comparable coastal university. These two programs would be complementary and synergistic, together producing marine scientists who know enough about management to generate appropriate data, and managers who know enough science to use the information effectively.
- Duke University offers a Ph.D. in Marine Science and Conservation and a Ph.D. in Earth and Ocean Sciences, through the Nicholas School of the Environment. The first degree has a strong focus on marine biology, conservation and policy, whereas the second degree focuses on understanding of the processes that affect the behavior of the Earth's surface, its oceans, climate, and interior.
- Once again, the proposed program will be substantively different than those at Duke University. Our proposed Ph.D. program will be inherently interdisciplinary both in required courses, scope and focus of research areas, and with requirements for both teaching and internships.
- A doctoral program in any of the sciences is a research based program, and the Ph.D. is distinguished from other types of degrees not by coursework, but by an extended apprenticeship that trains the students to be independent members of the scientific community. In each of the programs described above, the research conducted by students is supervised by faculty with unique strengths, knowledge, experience and expertise. In this sense, there is no duplication in the research efforts in any of the marine programs in North Carolina, since every student has a unique experience. Through the proposed Ph.D. program in Coastal and Marine Science, marine science faculty at UNCW could greatly expand the wealth of talent that drives marine research in North Carolina, thus enhancing the intellectual and physical infrastructure that is needed to understand and manage one of the state's most valuable resources. It would contribute to the development of inter/trans-disciplinary teams to attack the problems of the coastal zone in a new and integrated way across the natural environment and human dynamics and contribute to an understanding of the one issue of paramount importance to southeast North Carolina, coastal sustainability. As so forcefully stated in the NSF Coastal SEES solicitation (NSF 12594), "Humans benefit from their use of coastal environments for enjoyment, dwelling, industry, and commerce, altering them physically, chemically, and ecologically. These alterations influence and interact with natural variability, extreme events, and long-term change to affect the system as a whole. A major challenge is to understand the dynamics of this coupled human-natural system in order to inform societal decisions about the uses of coastal systems, including for scientific and conservation purposes. Scientific understanding is foundational, and

includes not only the natural sciences, but also an understanding how people and organizations interpret, assess, and act upon scientific evidence and how they weigh these interpretations against other interests to influence governance and decision-making. Thus, coastal sustainability relies on broad and intimately interconnected areas of scholarship about natural and human processes.”

25. Would a joint effort undertaken in concert with other UNC campus programs more efficiently meet the needs your proposed mission expansion seeks to serve?

- The University of North Carolina Wilmington currently explores all avenues of collaboration with sister institutions in North Carolina and will continue to do so. The recommended change in mission should enhance the university’s ability to enter into partnerships, particularly in areas of special expertise such as Marine Science. Item 5 in its criteria for evaluating new doctoral program proposals requires an effort to collaborate in this regard (see Table 6). UNCW is committed to such collaboration, especially when efficiencies and synergies would be the result of such collaboration.
- Ph.D. in Applied and Experimental Psychological Science
 - We consulted with other programs and explored their interest in training PhD level students in the four areas of emphasis we have identified, and we received no expressed interest in collaborating in the training of students in these areas. We specifically identified areas that match our particular strengths. Although other campuses showed little interest in collaborating, this did not surprise us. It is customary that graduate training in psychology, particularly at the doctoral level, draws interest nationally and not just locally. Therefore, there would be little gained by offering the program across multiple locations. We have the faculty and facility resources to operate the program. We have tremendous student interest, and so our application numbers will be extremely high. Consequently, offering the program at multiple campuses will do little in terms of student interest. Moreover, by offering the program as a full-time venture for students with classes at a single campus means that class sizes remain full (especially given that most doctoral courses are course we already teach our MA students), regular timely offerings of classes at a single campus can be easily maintained, there will be less duplication and waste of resources, and policies and administrative decisions can be centralized within a single campus administration. In short, offering PhD programs in psychology at multiple institutions as a joint venture is exceedingly rare, and as we considered this option in some detail, it became very apparent why that is—the costs of such an approach would greatly outweigh any benefits.

- Ph.D. in Coastal and Marine Science
 - Current or Planned Interaction with Other Campuses:
 - In 2008, N.C. Marine Science Council (comprised of the directors of marine science programs in the UNC System) recommended that the “UNC System develop a world class inter-institutional academic degree program in marine science”. Such a program would allow students access to the large base of courses and scientific expertise combined in all the University system’s Ph.D. Programs. In order to fully participate in this program, UNCW needs to develop its own Ph.D. in Coastal and Marine Science .
 - UNC is home to over 200 faculty, 200 professional staff and postdoctoral researchers, and 500 undergraduate and graduate students working on marine issues. The combined impact of UNC marine science capabilities can far exceed any singular efforts, and with the proper coordination can provide tremendous opportunities in different environments for field and classroom experiences.
 - In parallel to and as a logical extension of the establishment of a Ph.D. in Coastal and Marine Science at UNCW, we propose to work with the UNC System in developing the necessary inter-institutional linkages to establish a system-wide Inter-institutional Ph.D. Program in Marine Science to meet the needs of the growing Marine Science Program and fulfill its mission, as well as meet the goals of UNC Tomorrow and the U.S. National Ocean Policy. The scope and form of an inter-institutional degree program should be proposed and carefully planned with representation from all the participating universities. Potential participants in this program include UNCW, Elizabeth City State University, North Carolina State University, the University of North Carolina at Chapel Hill, East Carolina University, and the Coastal Studies Institute in Manteo. Indeed, East Carolina University has recently expressed a desire to explore formal linkages between their Ph.D. in Coastal Resource Management and our Ph.D. in Coastal and Marine Science once it is established. The unique coastal environments in North Carolina will provide natural laboratories for the students in this program. This program will allow all UNC students transparent access to faculty expertise throughout the university system.
 - Interinstitutional Collaboration on Education in Marine Science. Initiation of some level of interinstitutional academic collaboration has been discussed by the N.C. Marine Science Council since 2008. An Independent Review of the University of North Carolina System Marine

and Coastal Activities (2013), conducted by the American Association for the Advancement of Science (AAAS) Research Competitiveness Program, "... soon determined that the UNC System has an extraordinarily rich assemblage of intellectual assets, facilities and capabilities that underlie research, education and outreach related to the coastal North Carolina marine environment, and more broadly to the regional, national and global environment." The word "assemblage" was used deliberately here because historically, the planning and support of programs has been largely "siloe" within institutions. The treatment of the programs in a more holistic and coordinated way, while still retaining institutional identity, presents a significant opportunity for NC to amplify the collective impact and increase national recognition of its marine-related programs. Two of their findings recommended that the System consider ways to better collaborate academically.

- **RECOMMENDATION 5:** The UNC System should encourage efforts to remove barriers to academic collaboration. For example, the UNC System could facilitate academic interaction by removing barriers that currently inhibit student and faculty exchange across institutions. Steps could include:
 - Selected course offerings across the system that might be targeted or designated as system-wide courses.
 - Common degree programs (Master's or Ph.D. level) with one or more degree-granting lead institution(s) but participation by other institutions.
 - All of these would help to facilitate articulation within the UNC System.
- **RECOMMENDATION 6:** The UNC System should encourage development of a coordinated online or hybrid course curriculum in marine science to leverage the breadth of activities offered throughout the State. These courses could be a component in a common, shared degree program in marine science (at the Master's or Ph.D. level), and would help maximize the use of teaching resources in the State without requiring duplication in hiring.
- "The AAAS review panel saw an opportunity for sharing the wealth of marine science expertise in the State through online courses and the use of technology in the curriculum. One opportunity would be to offer hybrid courses, with the bulk of the content offered online combined with a field component offered at the coastal marine stations."

- In addition, RECOMMENDATION 8 (build dorms at the coastal marine science centers) the AAAS Report recommended “The coastal marine science activities offer unique facilities for focused research experiences (summer classes, semester-on-the-coast, etc.) And, while this does demand additional resources, it would significantly enhance these signature programs for North Carolina.”

26. Have you consulted other UNC campuses about such cooperative efforts?

- a. **If so, provide the specifics of those consultations and the outcome of the consultations.**
 - b. **Do you anticipate that the change in mission will result in more collaborative activities with other UNC campuses? Be specific.**
- Doctor of Nursing Practice
 - UNCW has a signed Memorandum of Understanding with ECU to collaborate on health education programs, including the DNP. Informal and formal discussions occurred twice with graduate nursing faculty and administrative partners at East Carolina University (ECU) during the 2010-2012 academic years. In February 2012, a face to face meeting was held between key ECU and UNCW School of Nursing administration and faculty to discuss a collaborative agreement. Renewed discussions with East Carolina University in April 2013 resulted in the some of the following ideas generated between faculties to foster collaborative opportunities between the two nursing programs.
 - Sharing of clinical placements for practicum experiences. Clinical sites, preceptors and supervising faculty could be shared to facilitate the completion of capstone competencies.
 - Sharing faculty expertise and guidance on Clinical Immersion or Dissertation project committees. Sharing faculty expertise for this purpose is desired by both schools because of the increased numbers of doctoral students that will be enrolled at both campuses.
 - Sharing in teaching the core courses for the DNP provided the course descriptions and content could meet both program outcomes and AACN DNP essentials for accreditation. The UNCW courses will have lower numbers of students initially due to a lesser enrollment than ECU. Students from ECU could take these courses for credit toward their degree at ECU as non-degree seeking students at UNCW. This

collaborative would involve faculty from both schools working together on course content and outcomes.

- Senior faculty at UNCW could serve on ECU's PhD Dissertation committees.
- The program coordinators at both schools will sponsor an annual faculty retreat for the DNP faculty to share experiences, network and plan future initiatives to enrich the programs at both schools.
- Ph.D. in Coastal and Marine Science
 - We are currently under discussion with other members of the marine science program in the UNC System about the opportunity to use the 3 coastal marine centers, Wilmington, Morehead City and Manteo to offer specialized courses system-wide. Students will be encouraged to take short courses or summer courses on other UNC campuses that offer marine programs, visit and conduct research at other UNC marine labs, and to invite faculty from different campuses to serve on their research advisory committees. Eventually, in an interinstitutional program, students might spend 1 or 2 semesters in residence at a host center other than e their home institution. The program of study for each Ph.D. student would be tailored for the student in consultation with his/her committee from offerings of the combined programs to meet the needs of the student's research. This program would capitalize on unique UNC assets to create an integrated and powerful educational experience through a set of 1-semester specialized courses (3 courses - 12 hours) offered on a block schedule (5 weeks) during spring semester at the 3 marine centers taught by specialists.
 - The UNCW Department of Physics and Physical Oceanography and the NCSU Department of Marine, Earth and Atmospheric Sciences are currently working on defining a way to share teaching resources so that both programs can get the breath of courses needed to support both M.S. and Ph.D. programs. We anticipate that this will be with a mix of faculty exchange and distance education.

27. Has your campus considered online instruction from another UNC campus or non-UNC campus to satisfy instructional needs the proposed change in mission is designed to address? Is it feasible to use online instruction for this purpose?

- Ph.D. in Applied and Experimental Psychological Science
 - Doctoral training in psychology, both in clinical and nonclinical areas, is poorly suited for online delivery. Training of PhD-level students requires working very closely with students on research activities in the lab, and clinical instruction,

supervision, and practicum experiences. Consequently, online delivery is not feasible

- Doctor of Nursing Practice
 - The hybrid model (both in-residence and online experiences) that has been chosen the DNP program at UNCW is based on the experiences of our very successful MSN program. We currently incorporate pedagogy that uses teaching/learning technology permitting face to face classroom delivery, synchronous on-line meetings, and asynchronous lessons and assignments. There will be some required visits to campus that students and faculty deem appropriate as this is a practice discipline requiring some skill development that is not amenable to on-line education. This model enhances coursework and socialization into the advanced practice role. The hybrid model is essential to the success of the program as much of the online (distance) education will allow a wider scope of faculty and students from all areas of the southeastern region to jointly participate. This model will be inclusive of many working professional nurses in Southeastern NC.
- ❖ Ph.D. in Coastal and Marine Science
 - There are currently no plans to offer our Ph.D. in Coastal and Marine Science to online. As the proposed program will be built upon courses that will require both laboratory and field access, they inherently difficult if not impossible to teach on-line. However, in the future, the UNCW Ph.D. in Coastal and Marine Science could provide initial experience in preparing for an interinstitutional degree program. An interinstitutional program could make use of distance education and on-line learning as a way for students to meet certain course requirements. In addition, as part of an interinstitutional program, efforts should be made to initiate a broadcasted system-wide seminar series to facilitate program interaction and share scant resources.

**Appendix IV: Report of the American Association for the Advancement of Science
(AAAS)**

**Independent Review of the University of North
Carolina System Marine and Coastal Activities**

A report prepared for
Thomas W. Ross
President

The University of North Carolina

Conducted by the American Association for the Advancement of Science (AAAS)
Research Competitiveness Program

Executive Summary

At the request of the University of North Carolina System General Administration (UNC-GA), the American Association for the Advancement of Science's (AAAS) Research Competitiveness Program undertook a comprehensive review of the marine and coastal programs within the UNC System. This report, based on that review, includes findings and recommendations that are meant to guide the UNC System as it seeks to leverage strengths and maximize impact of its marine-related program assets. In North Carolina, marine-related activities are important to the State's economy, both in traditional sectors like recreation and tourism, fisheries, hazard resilience, and marine heritage, and in emerging areas like wind energy and marine biotechnology. UNC System faculty members are leaders in areas such as marine biotechnology, wind energy, coastal sustainability, marine aquaculture, climate change and marine ecosystem health.

The review comes at a time of significant transition particularly for public institutions of higher education nationwide. This transition is driven to some degree by new technology that has enabled alternative modes and means of information delivery. But it is also driven by tight budget environments and heightened scrutiny aimed at ensuring effective use of resources.

Assessing the capacities of programs, and in this case marine-related programs, that have a System-wide footprint, will help to remove barriers to cross-system programmatic synergies. This in turn will help to re-define the North Carolina experience for students.

Perhaps the most significant outcome of this review will be to better position the UNC system to compete in the changing academic landscape¹. The UNC System's marine-related programs have many forward-looking elements and best practices upon which to build. A system-wide effort to package and market the marine-related activities would enhance the external visibility and accessibility of these assets, which, when considered *in toto*, are formidable.

Comprising much of the breadth of marine and coastal sciences in the UNC System, a total of 26 units, referred to as "UNC Activities," were included as part of this review². These units constitute entities such as departments, centers, institutes, interdisciplinary degree programs, or other programs that the UNC viewed as relevant and significant to coastal and marine sciences in the State. At the start of this review, UNC-GA requested institutional self-studies which resulted in the capture of teaching, research and outreach services that were being conducted by UNC Activities in marine science. The content and depth of each of the self-studies varied, reflecting differences in mission, vision, resources, and capacity for marine science work at the institutions. In total, 8 self-study documents were generated (one from each of the six universities; these each had multiple Activities), the UNC Coastal Studies Institute, and the NC Sea Grant, which were then reviewed by a national panel of marine and coastal sciences experts convened by AAAS. The AAAS panel conducted a week-long site visit to interview faculty and administrators representing each of the UNC Activities

and visited three cities along the coast, Wilmington, Morehead City, and Manteo, touring facilities at each

¹ “They never saw it coming.” *Science* 339 (2013)

² This AAAS report includes a review of programs administered by the following institutions: East Carolina University (**ECU**), Elizabeth City State University (**ECSU**), North Carolina State University (**NC State**), University of North Carolina---Chapel Hill (**UNC---CH**), University of North Carolina – General Administration (**UNC---GA**), University of North Carolina at Wilmington (**UNCW**), and Western Carolina University (**WCU**).

location. In its deliberations, the panel considered the marine-related programs from a system-wide perspective using both the self-study documents and insights gathered from the site visits, presentations made by the units, and in-person interviews.

The AAAS panel soon determined that the UNC System has an extraordinarily rich assemblage of intellectual assets, facilities and capabilities that underlie research, education and outreach related to the coastal North Carolina marine environment, and more broadly to the regional, national and global environment. The word “assemblage” is used deliberately here because it appears that, historically, the planning and support of programs has been largely “siloed” within institutions. The treatment of the programs in a more holistic and coordinated way, while still retaining institutional identity, presents a significant opportunity for North Carolina to amplify the collective impact and increase national recognition of its marine-related programs.

In North Carolina, the marine and coastal programmatic activities are hosted at institutions spanning the spectrum of institutional cultures, missions and Carnegie classifications³. Each UNC activity fills a unique niche, consistent with the institution’s culture and mission, to serve a distinct set of stakeholders. Most significantly, the AAAS panel did not identify any areas where there was obvious redundancy or overlap in programs. Rather, the various marine activities of the UNC System comprise a rich and diverse assemblage, the potential of which can be fully realized through improved coordination and collaboration.

Grassroots collaborations do exist in several areas of the UNC System. However, these interactions tend to be between individuals or focused on specific project areas. What is lacking is a level of coordinated stewardship with full participation at the unit level that takes advantage of a comprehensive, “big-picture” view and can foster interactions among programs. With this level of coordination, the UNC Activities can function more strategically and work to more systematically develop opportunities that transcend individual programs, projects, and institutions. The benefit will be the System’s enhanced competitiveness in the marine-related programs, manifested in a coordinated brand that helps with recognition of system-wide assets, opportunities for enlarging and diversifying the research portfolio and new ways to control costs.

The AAAS panel offers 14 recommendations to improve coordination of UNC Activities that might then translate to better recognition of the strengths of the UNC marine-related activities both internally and externally. These recommendations are intended to be constructive and advisory. The mechanisms to effect changes administratively should be determined by UNC- GA. Four overlapping and complementary topic areas are identified to promote better leverage and efficiency across the UNC system: Statewide Planning and Coordination, Reducing Barriers for Research and Academic Collaborations, Marine Science Activities Planning and

³ The relative emphasis an institution of higher education places on research and undergraduate and graduate education defines its cultural landscape and is dictated by its mission. Insights into the cultural traditions at

institutions of higher education can be gained from the Carnegie Foundation for the Advancement of Teaching's classifications (<http://www.carnegiefoundation.org>), which attempt to categorize colleges and universities according to their highest or most dominant degree awarded (Associates, Bachelors, Masters, Doctoral) and the level of their research activity (Research Universities with average, high, and very high research productivity). In addition, to these generic labels, institutions have their own special cultural traditions.

Communication, and Other. Each of these recommendations is further detailed in Part I of the report.

Most of the recommendations below will not require great commitments of new fiscal resources, but they will require a common focus, clear leadership, more coordination and a commitment *by all of those involved*. The AAAS panel is convinced that if these recommendations are embraced, North Carolina will be in a leadership role nationally in marine-coastal research, education and service.

STATEWIDE PLANNING AND COORDINATION

RECOMMENDATION 1: The UNC GA should provide greater leadership and coordination of UNC System Activities. As a first step, UNC-GA should build on information in the self- studies as well as other sources to maintain and disseminate an up-to-date inventory of programs and activities. This effort should be complemented by the establishment of milestones and measurement and reporting of outcomes for all participating units.

RECOMMENDATION 2: The UNC System should commission studies on the economic valuation of coastal ecosystem services and natural capital as well as the direct and indirect economic benefits of marine science and technology activities. Such information should be used to communicate the economic value of North Carolina's coastal environment and the role of the UNC System in providing vital understanding, education and outreach to support the wise use and stewardship of natural resources as well as stimulating local, regional and statewide economies through marine science and technology investment.

RECOMMENDATION 3: The UNC System should foster the development of a clear brand or identity for the major marine-related assets and programs, building on the results of Recommendations 1 and 2. For example, with reasonable investment, marine science assets in the Morehead City-Beaufort area could easily be packaged as a national center of excellence. Also, one can imagine the "Marine Research Triangle Partnership" involving UNC-CH's IMS, NC State's CMAST and the Duke University Marine Lab (located in Beaufort), as a natural extension of the Research Triangle Park brand.

REDUCING BARRIERS FOR RESEARCH AND ACADEMIC COLLABORATIONS

RECOMMENDATION 4: The UNC System should foster stronger and more integrative research collaborations and focus more attention to communicating to the public the economic and societal benefit that such research is able to produce.

RECOMMENDATION 5: The UNC System should encourage efforts to remove barriers to academic collaboration.

RECOMMENDATION 6: The UNC System should encourage development of a coordinated online or hybrid course curriculum in marine science to leverage the breadth of activities offered throughout the State. These courses could be a component in a common, shared degree program in marine science (at the Master's or Ph.D. level), and would help maximize the use of teaching resources in the State without requiring duplication in hiring.

RECOMMENDATION 7: The UNC System and individual institutions should foster undergraduate research and encourage efforts to ensure that undergraduate and graduate student mentoring is sufficiently valued and rewarded.

RECOMMENDATION 8: The UNC System should consider building and maintenance of dormitories to foster residential academic programs at the three coastal locations (Wilmington, Morehead City, and Manteo) and to facilitate statewide participation in coastal field studies. More broadly, the UNC system is encouraged to consider a more proactive approach to regular maintenance and upkeep of coastal facilities (including equipment) in conjunction with overall capital improvement schedules.

MARINE SCIENCE ACTIVITIES PLANNING & COMMUNICATION

RECOMMENDATION 9: Leaders of UNC Activities should develop unit-level strategic plans that articulate explicitly with strategic planning by their home institutions and by the UNC System. These plans should include benchmarks and quantitative metrics and use the self- study reports as a starting point. Periodic assessments should be undertaken to monitor progress.

RECOMMENDATION 10: Leaders of UNC Activities should develop and execute a systematic and coordinated communication plan.

RECOMMENDATION 11: Leaders of UNC Activities should recognize and fully utilize the well-developed communication and outreach capabilities of North Carolina Sea Grant and the Coastal Studies Institute.

RECOMMENDATION 12: Leaders of UNC Activities should encourage the use of modern communication and social media technology to improve inter-unit communication and to enhance the curriculum at both the undergraduate and graduate levels.

OTHER

RECOMMENDATION 13: The UNC System should encourage all units to develop fund-raising strategies and plans in coordination with their home institutions, enhance external development programs and to engage external advisory committees and boards.

RECOMMENDATION 14: The UNC System should actively encourage and facilitate coordination of diversity initiatives for students and faculty in marine science.

Many excellent programs, centers and institutes can be found within the UNC System. With appropriate coordination, collaboration, communication, and support, these assets can achieve even more than they already do and provide the state with additional significant return on its

investment.

The recommendations in this report are intended to support the UNC GA's ability to facilitate a culture of cross unit coordination and one that leads to a reduction in barriers to the mechanisms that would enhance it. Acting upon the recommendations of this report can result in improvements in both programmatic efficiencies and effectiveness. The panel suggests that

the UNC GA establish and determine the ground rules, but not manage the details. For example, significant program enhancement and efficiencies could be achieved if UNC Chapel Hill and NC State collaborate on operating a shared dormitory facility in Morehead City. The development of a joint master's or doctoral program, and shared coursework at any level, would expand opportunities for students without incurring significant additional personnel and operational costs. A shared system to manage vessels and equipment could both improve efficiencies and expand access of these resources to a wider user base. Shared approaches to public relations, development, and student recruitment could strengthen these activities while at the same time making more efficient use of personnel and operations budgets. The AAAS panel is convinced that if these recommendations are embraced and fulfilled at all levels, North Carolina can be in a leadership role nationally in marine-related research, education and service.

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Section I: AAAS Panel's Major Findings and Recommendations

Introduction and Context

The University of North Carolina (UNC) System has marine-related⁴ programs located throughout the State, from the western mountains to the coastal plain. To understand better the breadth and depth of these activities and to explore their possible synergies, the UNC General Administration (UNC-GA) commissioned the American Association for the Advancement of Science's (AAAS) Research Competitiveness Program to undertake a comprehensive review of the marine-related programs within the UNC System. The AAAS panel focused on developing recommendations that are meant to guide the UNC System as it seeks to leverage strengths and maximize the impact of its marine-related program assets. In total, 26 units, referred to as "UNC Activities," were included as part of this review, illustrating the breadth of marine and coastal sciences in the UNC System. These units constitute entities such as departments, centers, institutes, interdisciplinary degree programs, or other programs that the UNC viewed as relevant and significant to coastal and marine sciences in the State⁵.

The review comes at a time of significant transition particularly for public institutions of higher education nationwide. This transition is driven to some degree by new technology that has enabled alternative modes and means of information delivery. But it is also driven by tight budget environments and heightened scrutiny aimed at ensuring effective use of resources.

Assessing the capacities of programs, and in this case marine-related programs, that have a System-wide footprint, will help to eliminate redundancies and remove barriers to cross-system programmatic synergies. This in turn will help to re-define the North Carolina experience for students. However, perhaps the most significant outcome of this review will be to better position the UNC system to compete in the changing academic landscape⁶. The UNC System's marine-related programs have many forward-looking elements and best practices upon which to build. A system-wide effort to package and market the marine-related activities would enhance the external visibility and accessibility of these assets, which, when considered *in toto*, are formidable.

The ocean is important whether you live on the coast or in the heartland. It covers 71% of the Earth's surface and contains 97% of the planet's water. The ocean drives our weather and climate through the global transfer of heat and water. The organisms in it generate much of the oxygen we breathe. And, nationally, more than 90,000 miles of shoreline support a \$60 billion recreation and tourism industry. In addition, the ocean supports a \$60 billion annual seafood industry and a \$20 billion recreational fishery and contains approximately \$8 trillion in oil and gas reserves as well as extensive capacity for offshore wind energy. Ninety five percent of the nation's commerce travels through U.S. ports⁷. In North Carolina, marine-related

⁴ The word "marine" is used throughout this report, but in reality, the AAAS panel is referring to a much broader purview that includes, coastal, estuarine, and related systems. It also covers diverse areas from the environmental sciences, to veterinary medicine, to social sciences and beyond. A comprehensive list of the activities in the review is provided in the Appendix.

⁵ This AAAS report includes a review of programs administered by the following institutions: East Carolina University (**ECU**), Elizabeth City State University (**ECSU**), North Carolina State University (**NC State**), University of North Carolina---Chapel Hill (**UNC---CH**), University of North Carolina – General Administration (**UNC---GA**), University of North Carolina at Wilmington (**UNCW**), and Western Carolina University (**WCU**).

⁶ “They never saw it coming.” *Science* 339 (2013)

⁷ <http://www.oceanleadership.org/ocean---policy---legislation/ocean---leadership---policy---priorities/>

activities are important to the State's economy, both in traditional sectors like recreation and tourism, fisheries, hazard resilience, and marine heritage, and in emerging areas like wind energy and marine biotechnology. UNC System faculty members are leaders in areas such as marine biotechnology, wind energy, coastal sustainability, marine aquaculture, climate change and marine ecosystem health.

At the start of this review, the UNC-GA requested institutional self-studies which resulted in the capture of teaching, research and outreach services that were being conducted by 26 distinct UNC Activities in marine science. The content and depth of each of the self-studies varied, reflecting differences in mission, vision, resources, and capacity for marine-related work at the institutions. The self-studies were then reviewed by a national panel of marine and coastal sciences experts convened by AAAS. The members of the review panel are listed below (bios are included in the Appendix):

- Christopher F. D'Elia, Dean and Professor, School of the Coast and Environment, Louisiana State University
- Jacqueline Dixon, Dean and Professor, College of Marine Science, University of South Florida
- Steven E. Lohrenz, Dean and Professor, School for Marine Science and Technology University of Massachusetts-Dartmouth
- Nancy Targett, **(Chair)** Dean and Professor, College of Earth, Ocean, and Environment, University of Delaware

For this task, AAAS, together with the UNC-GA, developed a charge that focused on opportunities and leveraging across the UNC System (see Appendix). The AAAS panel conducted a preliminary assessment of each of the UNC Activity's capabilities and gaps, based on the questions from the AAAS charge. These preliminary findings laid out a foundation for the AAAS panel to conduct a week-long site visit to interview faculty and administrators representing each of the UNC Activities. The team visited three cities along the coast, Wilmington, Morehead City, and Manteo, touring on-site facilities at each location. In its deliberations, the panel considered the marine-related programs from a system-wide perspective using both the self-study documents and insights gathered from the site visits, presentations made by the units, and in-person interviews. At the end of the site visit, the AAAS panel briefed the UNC-GA VPR with its preliminary findings and recommendations. This report reflects a further discussion and refinement of those views.

This section of the report includes high-level findings and recommendations that emphasize opportunities for coordination across the UNC System (Question 3 of the AAAS Charge, see Appendix). Part II of this report includes further review of the UNC Activities, reflecting the panel's impression of how the units contribute to the totality of marine and coastal sciences in the State and where there are gaps (Questions 1 & 2 of the AAAS Charge).

North Carolina's Culture for Marine Science

In North Carolina, the marine and coastal programmatic activities are hosted at institutions spanning the spectrum of institutional cultures, missions and Carnegie classifications⁸. Each UNC activity fills a unique niche, consistent with the institution's culture and mission, to serve a distinct set of stakeholders. Marine programs at research-intensive universities such as UNC-CH and NC State contribute to our understanding of coastal hazards and resilience, marine

ecosystem health, climate change, marine applications of food science and veterinary medicine. Benefits from these efforts accrue to the UNC System as a result of the national visibility of the work (publications in journals like *Science*, *Nature*, and *PNAS* for example; research dollars to the University) and the local impact of having nationally-acclaimed experts that are available to consult with State resource managers, legislators, or businesses. The research also translates into unique learning opportunities for students.

Marine and coastal programs at teaching-intensive institutions serve to educate the next generation of citizens to think broadly about environmental issues. UNCW, in particular, has embraced marine science as the signature theme for the entire university, and is explicitly reflected in traditional disciplinary areas (e.g., Departments of Physics & Physical Oceanography, Biology & Marine Biology, and Chemistry & Biochemistry). UNCW engages students, particularly at the undergraduate and master's level (and at the Ph.D. level in Marine Biology), in a significant experiential-learning process that builds on faculty research and innovative partnerships (e.g., Marine Biotechnology). Other teaching-intensive units also incorporate hands-on student experiences into their marine-related programs. ECU seeks to be an instrument of regional transformation and its marine-related emphases are in areas that are particularly important for the coastal state of North Carolina, including coastal science and policy, coastal resource management (including a Ph.D. program in this area), sustainable tourism and maritime heritage. At WCU the marine-related emphasis is concentrated in the study of developed shorelines. This program has national visibility and extramural funding in addition to strong undergraduate engagement in the analysis of data and production of data products such as the storm surge viewer or the beach nourishment viewer. ECSU's program, while small, collaborates successfully with other institutions both inside and outside of North Carolina to enhance opportunities for its students. As a historically-black college, ESCU offers the added dimension of serving under-represented groups and a pool of students interested in the field.

Marine-related programs like North Carolina Sea Grant and the UNC Coastal Studies Institute (CSI) fall outside of the Carnegie classification because they are not academic entities per se, but they serve a valuable role in translating science to the benefit of North Carolina stakeholders. NC Sea Grant and UNC CSI have a cross-state presence and perspective.

⁸ The relative emphasis an institution of higher education places on research and undergraduate and graduate education defines its cultural landscape and is dictated by its mission. Insights into the cultural traditions at

institutions of higher education can be gained from the Carnegie Foundation for the Advancement of Teaching's classifications (<http://www.carnegiefoundation.org>), which attempt to categorize colleges and universities according to their highest or most dominant degree awarded (Associates, Bachelors, Masters, Doctoral) and the level of their research activity (Research Universities with average, high, and very high research productivity). In addition, to these generic labels, institutions have their own special cultural traditions.

It was apparent to the AAAS review panel that the marine-related programs within the state have self-selected into niches that largely complement each other rather than compete. More effective coordination of these already strong and diverse cross-state efforts could significantly strengthen them all and enhance the UNC System's competitiveness in this area; truly a "win- win-win" opportunity for the programs, the home institutions, and the system.

Strategic Thinking and Opportunities for the UNC System

Overview

The UNC System has an extraordinarily rich assemblage of intellectual assets, facilities and capabilities that underlie research, education and outreach related to the coastal North Carolina marine environment, and more broadly to the regional, national and global environment. The word “assemblage” is used deliberately here, because it appears that historically, the planning and support of programs has been largely “siloed” within institutions. The treatment of the programs in a more holistic and coordinated way, while still retaining institutional identity, presents a significant opportunity for North Carolina to amplify the collective impact and broaden recognition of its marine-related programs. Such a situation often exists in state university systems because they are large complex organizations composed of individual campuses with multiple and typically competitive leaders.

The coordination has already started organically in several areas of the UNC System. Grassroots collaborations do exist. Interactions do occur among the institutions, programs and laboratories at various levels including research and shared facilities (see Part II). However, these interactions tend to be between individuals or focused on specific project areas. What is lacking is a level of coordinated stewardship that has full participation at the unit level and also takes advantage of a comprehensive, “big-picture” view that can foster interactions among programs. This coordination need not be onerous, but it does require buy-in.

In undertaking this assessment, the UNC System has taken a critical step toward adapting to the changing academic landscape. Effecting change requires strong and committed leadership at all levels. The benefit will be the System’s enhanced competitiveness in the marine-related programs, manifested in a coordinated brand that helps with recognition of system-wide assets and opportunities for enlarging and diversifying the research portfolio. It should also help North Carolina’s competitiveness in vying for large federal center grants. This is really an opportunity for win-win solutions from which everyone can benefit.

The AAAS panel did not identify any areas where there was obvious redundancy or overlap in programs (see section titled *The Degree to Which UNC Marine Activities Overlap*, p. 33). Rather, the various marine activities of the UNC System comprise a rich and diverse assemblage, the potential of which can be fully realized through improved coordination and collaboration.

This section of the report outlines steps to improve coordination of UNC activities that might then translate to better recognition of the strengths of the UNC marine-related activities both internally and externally.

In summary, four overlapping and complementary topic areas are identified to promote better leverage and efficiency across the UNC system: Statewide Planning and Coordination,

Reducing Barriers for Research and Academic Collaborations, Marine Science Activities Planning and Communication, and Other. Each topic area is linked to a set of recommendations.

State-wide Planning and Coordination

• **Building on Self Studies**

RECOMMENDATION 1: UNC GA should provide greater leadership and coordination of UNC System Activities. As a first step, UNC-GA should build on information in the self-studies as well as other sources to maintain and disseminate an up-to-date inventory of programs and activities. This effort should be complemented by the establishment of milestones and measurement and reporting of outcomes for all participating units.

The self-studies are an important first step in understanding the breadth and depth of UNC System-wide assets. Next, the UNC System should develop a better understanding of the potential system-wide synergies by mapping the inventoried assets in a comprehensive way. This will highlight strengths and identify gaps and facilitate decisions to ensure that desired outcomes are being met and that programmatic impacts are being measured in a comprehensive way. With a better understanding of the breadth of the assets one can enhance system-wide competitiveness and impact.

• **Economic Value of North Carolina's Coast**

RECOMMENDATION 2: The UNC System should commission studies on the economic valuation of coastal ecosystem services and natural capital as well as the direct and indirect economic benefits of marine science and technology activities. Such information should be used to communicate the economic value of North Carolina's coastal environment and the role of North Carolina's system of higher education in providing vital understanding, education and outreach to support the wise use and stewardship of natural resources as well as stimulating local, regional and statewide economies through marine science and technology investment.

Programs within the UNC System provide vital understanding, education and outreach to support the wise use and stewardship of important coastal resources. Development of an economic valuation of the coast using traditional "neoclassical" market-based economics and also "biophysical" economics based on the valuation of ecosystem services and natural capital would put the UNC System in a much stronger position to demonstrate how its marine-related programs are of strategic importance to the people of North Carolina and beyond. Studies in other states have demonstrated that attracting a workforce with required skills is essential to commercialization and the development of new products derived from the marine sector⁹. Clear

linkages to economic and educational impacts are essential to gain needed support in the business community and of other stakeholders. North Carolina Sea Grant is already doing a superb job translating science into economic benefit for the people of North Carolina and could be a significant resource in accomplishing this task (see below).

• **Branding**

RECOMMENDATION 3: The UNC System should foster the development of a clear brand or

identity for the key marine-related programs, building on the results of Recommendations 1 and

2. For example, with reasonable investment, marine science assets in the Morehead City-Beaufort area could easily be packaged as a national center of excellence. Also, one can

⁹ Barrow, Clyde; Loveland, Rebecca; and Terkla, David, "Sailing into a Strong Future: The Massachusetts Marine Science and Technology Industry" (2005). MassBenchmarks. Vol. 7, No. 4, pp. 15---21:
http://scholarworks.umb.edu/econ_faculty_pubs/24

imagine the “Marine Research Triangle Partnership” (MRTP) involving UNC-CH’s IMS, NC State’s CMAST and the Duke University Marine Lab (located in Beaufort), as a natural extension of the Research Triangle Park brand. The founding documents of the Research Triangle Park indicate that it is to be an engine for prosperity for the entire state, and MRTP could be a natural extension benefitting all.

The AAAS review panel was extremely impressed with the expertise and capabilities of North Carolina’s marine-related activities. Excellent facilities are available for them. However, when someone in the public thinks about ocean sciences, he or she inevitably identifies leading institutions such as Woods Hole, Scripps, and perhaps a few others. Few professionals, even those in the marine sciences, would identify Morehead City as a national center of excellence, except perhaps for the researchers located there. The UNC System has a wonderful prospect to develop a better identity for key marine resources. For example, Morehead City is truly an exceptional and important center of marine and coastal research at the national scale. The AAAS review panel visited the campuses of NC State’s Center for Marine Sciences and Technology (CMAST) and UNC’s Institute of Marine Sciences (IMS). Despite the close physical proximity of these two units and also Carteret Community College (CCC), and clear evidence that they cooperate in many ways, to the person driving down Arendell St. (US 70), they seem to be unrelated and distinctly independent entities. Why not try to give it a visual identity for what it really is: *a national powerhouse in marine science, research, education and outreach?*

With some master planning and relatively little landscape architectural work and signage, a clear visual identity could be given to this significant campus as an integrated unit. This alone would make a powerful statement that would be very positively received by the local community in particular.

In addition, the coastal laboratory facility assets of the UNC System aggregate into three geographic clusters: Wilmington, Morehead City-Beaufort, and Manteo. The UNC System could create a virtual presence for its marine-related assets by aggregating and integrating them on a web site. The foundation for such a web portal appears to already exist in the form of a website focused on Coastal and Marine Sciences in North Carolina (<http://ncmarinescience.com/>). This portal could provide easy, comprehensive access to individuals trying to find a particular expertise, looking for specific projects, or trying to find course offerings in marine and coastal science.

Reducing Barriers for Research and Academic Collaborations

The AAAS review panel felt that the assemblage of UNC marine Activities, while encompassing impressive depth and breadth in marine-related research and education, lacked clear coordination and a statewide strategic vision for its marine and coastal endeavors. This apparent lack of coordination is an impediment to the ability of marine programs to advocate and communicate not only with higher levels within the administration of higher education and political leadership, but also to the general public.

- **Research Collaborations**

RECOMMENDATION 4: The UNC System should foster stronger and more integrative research collaborations and focus more attention to communicating to the public the economic and societal benefit that such research is able to produce.

The AAAS review panel heard about a number of ongoing research collaborations between the institutions and this is an area that should be encouraged to expand. The broad range of expertise across the UNC system presents an opportunity for developing highly competitive partnerships. Apparently, under President Bowles, the system office solicited responses previously for inter-campus collaborative research activities with the expectation of funding, but a lack of resources prevented this program from being realized. This unfortunately has resulted in skepticism about such efforts. The fact that the current external review was commissioned without an expectation of new resources is actually helpful. This should cause institutions to focus on stewardship of critical core capabilities instead of just worrying about jostling for new ones. Certainly system-wide collaboration could be framed around resources, the maintenance of current resource levels as well as attempts to secure new resources from the State of North Carolina or from other sources external to North Carolina.

Collaborative research efforts could also lead to increased efficiencies and support within the research enterprise for grant writing, patents and licensing, technology commercialization, and shared computational facilities.

• Academic Collaborations

RECOMMENDATION 5: The UNC System should encourage efforts to remove barriers to academic collaboration. For example, the UNC System could facilitate academic interaction by removing barriers that currently inhibit student and faculty exchange across institutions. Steps could include:

- selected course offerings across the system that might be targeted or designated as system-wide courses,
- common degree programs (Master's or Ph.D. level) with one or more degree-granting lead institution(s) but participation by other institutions (the Maryland MEES Program is an example).

All of these would help to facilitate articulation within the UNC System.

RECOMMENDATION 6: The UNC System should encourage development of a coordinated online or hybrid course curriculum in marine science to leverage the breadth of activities offered throughout the State. These courses could be a component in common, shared graduate degree programs in marine science, and would help maximize the use of teaching resources in the State without requiring duplication in hiring.

The AAAS review panel saw an opportunity for sharing the wealth of marine science expertise in the State through online courses and the use of technology in the curriculum. One opportunity would be to offer hybrid courses, with the bulk of the content offered online combined with a field component offered at the coastal marine stations.

- **Enhanced graduate and undergraduate experiential learning and field studies** *RECOMMENDATION 7:* The UNC System and individual institutions should foster undergraduate research and encourage efforts to ensure that undergraduate and graduate student mentoring is sufficiently valued and rewarded.

For all the programs, it is clear that marine science activities provide enhanced hands-on learning and research experiences for undergraduates. The UNC System needs to assess the importance of experiential learning within the context of its strategic plan and then foster it as appropriate, encouraging recognition and compensation for faculty involved in it.

RECOMMENDATION 8: The UNC System should consider building and maintenance of dormitories to foster residential academic programs at the three coastal locations (Wilmington, Morehead City, and Manteo) and to facilitate statewide participation in coastal field studies.

More broadly, the UNC system is encouraged to consider a more proactive approach to regular maintenance and upkeep of coastal facilities (including equipment) in conjunction with overall capital improvement schedules.

The coastal marine science activities offer unique facilities for focused research experiences (summer classes, semester-on-the-coast, etc.). Investment in dormitories at each coastal marine science region (UNCW-CMS in Wilmington, UNCCH IMS and NC State's CMAST in Morehead City, and UNC CSI in Manteo) has been suggested as a way to increase short course enrollments and provide living quarters for guest investigators. Institutions in the same region (e.g., CMAST and IMS in Morehead City) should be encouraged to coordinate or share dormitory facilities. And, while this does demand additional resources, it would significantly enhance these signature programs for North Carolina.

Marine Science Activities Planning and Communication

- **Strategic Planning**

RECOMMENDATION 9: Leaders of UNC Activities should develop unit-level strategic plans that articulate explicitly with strategic planning by their home institutions and by the UNC System. These plans should include benchmarks and quantitative metrics and use the self-study documents as a starting point. Periodic assessments should be undertaken to monitor progress.

All marine-related units should have strategic plans that clearly articulate their mission, vision, and values. Such plans should be developed with the involvement of external advisory boards, committees and councils. These plans should aggregate up to support the strategic plan of the units' home institution as well as the System's overall strategic plan. Outcomes should be directly related to these plans. Benchmarks and milestones, supported by quantitative metrics, will help to measure progress.

As a neutral broker, the System can facilitate the success of the unit strategic plans by encouraging inter-unit coordination and communication occur. Each unit should designate an

individual charged with “administrative outreach” to other units, and identify an internal communication team with the responsibility to marshal resources and work with the System and other units. These efforts can complement and enhance existing assessment activities now

undertaken as part of the accreditation process required by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC).

- **Strengthening Internal and External Communication**

RECOMMENDATION 10: Leaders of UNC Activities should develop and execute a systematic and coordinated communication plan.

There is a need for these leaders to see that a system-wide synergy does not need to compromise a unit’s fidelity to its home institution. Cultivating such system-wide synergies ensures future competitiveness and North Carolina is better prepared than many to meet that challenge. However, this will require a critical assessment of the current structures, sun-setting those that are not achieving meaningful outcomes and initiating new joint efforts that have bottom up and system buy-in (see additional discussion in Section II: The Degree to Which UNC Activities Coordinate). This may need to be facilitated by someone without institutional affiliation (for example, someone at the system level who is perceived as a neutral broker). The value of clear, coherent, and integrated picture of marine science in North Carolina to both internal and external audiences cannot be overstated (see section titled *The Degree to Which UNC Activities Coordinate*, p. 31).

To facilitate system-wide oversight, enhanced communication is essential at all levels: within institutions, among institutions and between individual institutions and the System Office. A coordinated communication plan needs to be developed and executed to achieve better internal and external recognition of marine related assets within the UNC System. Relevant parties should come together to determine a course of action to accomplish this in a way that does not interfere unnecessarily with unit autonomy or prevent a healthy level of measured inter-unit competition. Regular system-wide meetings to continue coordination and communication should be undertaken in the future. The AAAS review panel sensed that there was general, although not universal, willingness or even eagerness throughout the System to enhance communication and interaction, so now the time is right to do this.

Coordination of efforts related to public outreach could have system-wide benefits. Understandably, each institution has invested most of its efforts in its own public relations activities and must focus on its own priorities. Some programs were doing a commendable job in external communications, while others were less effective in that area. A signature brand that transcended institutions and drew people to a single portal to investigate the wide range of UNC System assets would clearly advantage all. The traditional modes of entry into UNC System assets would still operate but, the portal would provide the System-wide overview. The website <http://ncmarinescience.com/> provides a conceptual example for this type of portal.

The adage that “a rising tide raises all boats” is applicable in that enhancing the visibility of marine programs, and developing a vision of a coordinated network of interrelated efforts

would be a powerful message.

- **Utilization of North Carolina Sea Grant and the Coastal Studies Institute**

(CSI) RECOMMENDATION 11: Leaders of UNC Activities should recognize and fully utilize the well- developed communication and outreach capabilities of North Carolina Sea Grant and the Coastal Studies Institute.

Two units within the purview of the AAAS review seem to be underutilized for the capabilities they offer to the entire system. The first is North Carolina Sea Grant, which has a formal communications program and also has resources to bring faculty, students and staff together for workshops, meetings and large events. Sea Grant might be engaged to coordinate a biennial “all-hands” meeting. UNC CSI has remarkable facilities for video production and editing. In some ways, this new unit is searching for a broader identity beyond the obvious goal of serving a regional field-going facility need. Partnering with Sea Grant on communicating coastal issues and UNC System solutions may be one such mission element, and the visible and strong presence of Sea Grant at UNC CSI suggest that that might occur.

- **Communication Technology**

RECOMMENDATION 12: Leaders of UNC Activities should encourage the use of modern communication and social media technology to improve inter-unit communication and to enhance the curriculum at both the undergraduate and graduate levels.

More use could be made of currently available technological resources to foster meetings via interactive video, web hosted technology, Skype, etc. Social media are critical for communicating with younger audiences. A communication strategy should be developed for marine-related programs within the UNC System. Such efforts are especially critical given the geographic separation of facilities within and across institutions.

Other

- **Development**

RECOMMENDATION 13: The UNC System should encourage all units to develop fundraising strategies and plans in coordination with their home institutions’ development office to enhance external development programs and to engage external advisory committees and boards.

Many public universities have begun the transition to a more private university budget model. Partnerships with local industries and organizations are critical. The AAAS panel recognized that most UNC Activities could enhance their external fundraising through gifts. Enhancement of the fundraising enterprise goes hand-in-hand with outreach to the local communities. The AAAS panel recognized the excellent job North Carolina Sea Grant was doing with respect to public outreach. Sea Grant can be an asset in development of community relationships that may translate into successful development efforts.

- **Diversity Initiatives**

RECOMMENDATION 14: The UNC System should facilitate coordination of diversity initiatives for students and faculty in marine science.

With better coordination, the marine science activity at Elizabeth City State University has the potential to provide a pool of underrepresented minority students to the research-intensive programs in the State. Other additional efforts to involve minority students should be undertaken.

A lack of diversity of faculty and students is also a challenge faced by the majority of the UNC marine programs as well as for geosciences across the country. As noted in a recent report by

the American Geophysical Union¹⁰, “the geosciences continue to lag far behind other sciences in recruiting and retaining diverse populations.” Many of the programs lacked any well-defined plans for enhancing the diversity of their students, staff and faculty. This is a glaring omission and should be clearly articulated in future strategic planning efforts.

¹⁰ Velasco and Velasco (2010) EOS Transactions of the American Geophysical Union Vol. 91. pages 289---296

Conclusions

The State of North Carolina is fortunate to have the intellectual capital of the UNC System to address its marine-coastal concerns and prospects. UNC System capabilities are formidable, both in terms of human resources and facilities. The UNC System has world-class institutions of higher education that participate in marine-related research from local and regional to global scales; strong State-based programs that excel in education and outreach; and non-academic programs that connect the institutions to stakeholders. In addition, the UNC System has the advantage of broad geographic presence throughout the State of North Carolina.

Many excellent programs, centers and institutes can be found within the UNC System. With appropriate coordination, collaboration, communication, and support, these assets can achieve even more than they already do and provide the state with additional significant return on its investment. The AAAS panel has offered fourteen recommendations that might be considered to help implement a more impactful and cohesive system-wide effort in the marine-coastal topic area. Most of these recommendations will not require great commitments of new fiscal resources, but they will require a common focus, clear leadership, more coordination and a commitment *by all of those involved*. The AAAS panel is convinced that if these recommendations are embraced and fulfilled at all levels, North Carolina will be in a leadership role nationally in marine-related research, education and service.

Section II:
**An environmental scan of
University of North Carolina
Coastal and Marine Activities**

Major Strengths or Unique Capabilities Supported by the UNC Activities

The AAAS panel expected to find significant strengths and capabilities supported by the campus activities throughout the UNC System, and it did. The following section offers highlights of unit strengths and their impacts.

The collective impacts of UNC coastal and marine activities extends from the transformative experiential student learning catalyzed by marine-related research at all institutions regardless of size and mission, to the research and faculty expertise that is a resource for national and state stakeholders (resource managers, business leaders, etc.), to specific positive economic outcomes, both fully realized (e.g., RecText, Surge Viewer, Surf Viewer, hybrid striped bass aquaculture), and potential (e.g., MARBIONIC, offshore wind energy, flounder aquaculture).

Looking at the impacts and outcomes from marine-related activities as a whole, it is readily apparent that there is a strong case to be made for the importance of UNC-System research and education to the state and nation. A quantification of the economic value of North Carolina's coastal ocean to the State (e.g., fisheries, ecosystem services that enhance hazard resilience, tourism, etc.) would help to put the value of these efforts into context for the State.

Marine-related assets are found throughout the State of North Carolina. Along the coast there are three primary locations with ready access to the sea and where substantial laboratory and field research teams exist: Wilmington, Morehead City-Beaufort, and Manteo.

- Wilmington.** UNCW labels itself North Carolina's Coastal University. In addition to the marine focus of the Center for Marine Science, coastal and marine themes are woven through the natural sciences, as well as through humanities, arts, and social sciences. It has a strong emphasis on experiential learning (primarily at the undergraduate and Master's level and also a Ph.D. in marine biology) that is facilitated by its proximity to dedicated research sites and to state-of-the-art laboratories and equipment. There is a rich cross-university curriculum that also includes inter-institutional partnerships such as the environmental science/environmental engineering 3+2 options with North Carolina State, articulation agreements with several North Carolina community colleges, international agreements with academic institutions, and internship opportunities with non-academic entities (e.g., state agencies, aquaria). Faculty members are dedicated and the leadership is forward looking. UNCW is looking to build capacity through additional innovative programming at levels that begin with K-12 (e.g., Marine Quest) and extend to partnerships between the MARBIONIC program and the Cameron School of Business (joint MBA postdoctoral fellowship) and to potential joint Ph.D. programs. Their focus is strategic with well-developed goals. The development of the Campus for Research Entrepreneurship, Service, and Teaching (CREST) is a potential game changer and has already resulted in significant uptick in grant support. UNCW has proposed the North Carolina

Alliance in Marine Science (NC AiMS). In concept, this is the kind of collaborative partnership that would help to leverage the UNC-System's significant marine-related institutional assets in a coordinated and synergistic way.

- **Morehead City-Beaufort.** This area of the coast is home to the coastal lab facilities for UNC-CH and NC State and proximate to the Duke University Marine Laboratory. The central location along the coast provides convenient access to a large portion of state

waters and habitats. In addition, this area of the coast is home to several marine-related government labs.

- **UNC-CH Institute for Marine Sciences (IMS).** Located in Morehead City, IMS has 11 residential faculty (9 tenure track, 2 non-tenure track), who have stellar records of research (funding and publications) and service (federal, state, and local initiatives). The faculty members are engaged in research around questions that address three of the great societal challenges: the ability of people to live at the coast (hazards, sea-level rise), quality and safety of our water supply (ecosystem health and function, human health), marine resource development and sustainability (living and non-living resources, science-guided policy and protections). They are well-integrated into UNC-CH marine-related research activities, with most holding joint appointments in the Department of Marine Science on the main campus. In addition, the IMS-based faculty members have strong collaborations with other North Carolina institutions and marine-related activities. IMS faculty members actively participate in graduate education. Since IMS is not a degree granting entity, students matriculate through departments on the UNC-CH campus. IMS faculty are also active in other aspects of education, contributing to field, classroom, independent research, and capstone activities for UNC-CH students and more broadly for undergraduates from other institutions who participate in the NSF REU (Research Experience for Undergraduates) program in marine science that is based at IMS. The on-site seawater facilities are a significant plus and add to the breadth of research that can be conducted at the lab. These are shared with researchers at NC State-CMAST (located less than a mile away). IMS is also home to a state-of-the-art North Carolina Biotechnology Center-funded molecular training facility to train water quality professionals in molecular techniques. IMS has dormitories to serve visitors (faculty/students), although they need to be refurbished.
- **North Carolina State University (NC State)-Center for Marine Science and Technology (CMAST).** CMAST has a beautiful facility in relatively close proximity to Carteret Community College, North Carolina State Government Labs, and IMS. They have resident faculty from three colleges (Agriculture and Life Sciences, Physical and Mathematical Sciences, and Veterinary Medicine) spanning 6 departments as well as individuals from North Carolina Sea Grant and North Carolina Extension. The group is diverse and yet well-integrated with evidence of innovative partnerships on display throughout the building (the NCMSEP posters were particularly effective at presenting topical synergies). The leadership is forward looking with plans for growth that were well articulated and coincident with the NC State overall strategic goals. The focus at CMAST is on Ocean Health and Sustainability (One Health: healthy environment, healthy animals, healthy people). The presence of a marine animal veterinary science program and a food safety

program make this site unique in the UNC System.

CMAST is coordinating NC State's plans to add several new faculty in coastal and marine sciences through the university's program in faculty excellence and to develop a semester-at-the-coast program that will further enhance student

engagement via hands-on learning. To support the latter, CMAST has developed plans to add a dormitory/guest house.

- **Manteo.** The UNC Coastal Studies Institute (UNC-CSI) is a multi-campus research, education and outreach partnership that provides institutional context and operational capability for collaborative research and programming in northeast North Carolina with marine-related activities housed throughout the State. It is located in a brand new building that includes state-of-the-art facilities. UNC-CSI can offer place-based, experiential learning and research opportunities in a unique coastal environment that are coordinated for inter-institutional programming that can augment traditional campus-based experiences. UNC-CSI is still undergoing some growing pains as it develops a business plan to sustain itself into the future.

In addition to the coastal sites, North Carolina is home to five institutions with marine-related activities and one, North Carolina Sea Grant that spans the State from the coasts to the Research Triangle.

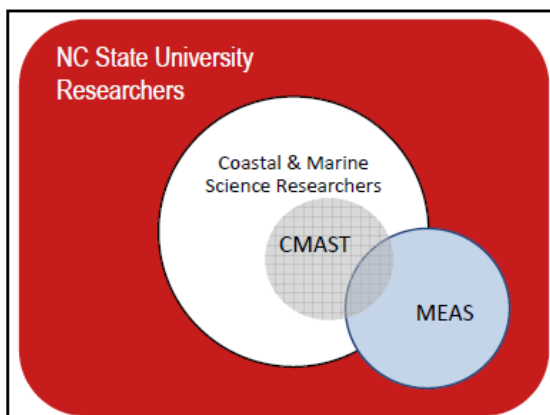
- **East Carolina University (ECU).** The focus at East Carolina is largely regional in keeping with their goal of being a "*national model of regional transformation*." The Institute for Coastal Science and Policy (ICSP) aggregates together faculty shared with the Departments of Anthropology, Biology, Economics, Engineering, Geography, Geological Sciences, Sociology, and Recreation and Leisure Studies to bring a multidisciplinary perspective (natural sciences and social sciences) to marine-related issues. Marine-related education at ECU is focused primarily on coastal resource management, sustainable tourism, natural hazards, and maritime heritage/archaeology. All of these programs have strong partnerships internal and external to ECU and there is good placement of students. There is also a Coastal-Maritime Council within ICSP that coordinates the 50+ ECU faculty members and administrators who have interests in coastal science and policy, and provides overall advice to the Institute.
- **Elizabeth City State University (ECSU).** ECSU is a Historically Black College and University (HBCU) and offers degrees at the baccalaureate and masters level to a diverse student body. This is the only HBCU in the State to offer an undergraduate marine science program and it could provide a pool of qualified under-represented students to the other State marine activities. Marine-related activities at ECSU have three components: 1. the marine environmental

science program itself; 2. undergraduate research experiences in ocean, marine, and polar science; and, 3. the Center for Remote Sensing of Ice Sheets (CReSIS). Much of the responsibility for the program is shouldered by Dr. Maurice Crawford, who is carrying a 4/4 teaching load, supervising undergraduate research projects, writing proposals, and trying to carry out a limited research program. ECSU has been very effective at establishing partnerships with other institutions (examples include CReSIS and DREAMS-Diversity in Research and Environmental and Marine Sciences-activities). Interestingly, most of the partnerships are external to North Carolina leaving significant scope for growth within North Carolina.

- **NC State University (NC State).** NC State Vice Chancellor for Research, Innovation and Economic Development Dr. Terri Lomax provided an excellent representation of how the marine programs were positioned within NC State. There is an opportunity to use

this type of visualization at other institutions and to then aggregate them to give a clearer and more comprehensive picture of marine-related activities in the North Carolina System.

Marine-related activities at NC State occur on the coast at CMAST but also in the Department of Marine Earth and Atmospheric Sciences (36 faculty) as well as in other departments across the university that are broadly categorized as Coastal and Marine Researchers (faculty from 14 units crossing 7 colleges). MEAS has a program that is well integrated across the geosciences from earth to atmospheric systems. It has significant depth and breadth in the area of predictive computational modeling of marine systems, alone or coupled to other components of the Earth System. The non-MEAS marine related activities are significant. Notable assets include the NC State Center for Applied Aquatic Ecology (CAAE) under the direction of Dr. JoAnn Burkholder that provides water quality research information to policy makers and the Program for Sustainable Coastal Engineering (SCE) and Ocean Energy (OE) which is based in at UNC- CSI in Manteo.



The relationship of marine science researchers at NC State. (Figure provided by Dr. Terri Lomax, NC State Vice Chancellor for Research, Innovation, and Economic Development)

- UNC-Chapel Hill (UNC-CH).** There are three marine-related units within UNC-CH: The Department of Marine and Atmospheric Science (MASC), Institute of Marine Science at the coast, and the Marine Sciences Program (MSP). All have faculty that function at a research-intensive level. The 13 tenure track and 3 research faculty in MASC are located in state-of-the-art space in the new UNC Science Complex (Venable Murray Hall). There is a strong and ongoing relationship with IMS faculty facilitated via video technology which links IMS with the main campus and via shared students and research. MASC clearly aligns with the primary elements of the UNC-CH strategic plan, touching on 4 of the 6. Marine-related faculty members at UNC-CH extend beyond MASC (including Departments of Biology, Geology, Environmental Sciences and Engineering, and Mathematics; the Institute for the Environment and the Renaissance Computing Institute). They have established collaborative relationships with each other and with other NC academic institutions. These include shared institutional appointments and cooperative academic programs (e.g., Ph.D. with UNCW). Shared state-of-the-art facilities at UNC-CH include the Joint Fluids Lab, the Aquarium Research Center, the Trace Metal Clean Room and the ICP-MS with laser ablation. In addition to partnerships within and between North Carolina academic institutions, UNC-CH marine related faculty also partner with non-academic entities such as federal and State government agencies and the private sector. This enhances their impact.
- Western Carolina University (WCU).** Marine science activity at WCU is focused on the Program for the Study of Developed Shorelines (PSDS) run by Dr. Rob Young and Dr. Andy Coburn. This strongly-branded, widely-recognized program, transferred from Duke to WCU in 2006. It is focused on coastal processes, particularly the science underlying coastal processes, and on how to develop and communicate science-based management recommendations to resource managers and to the public. The program is externally funded with excellent partnerships and produces data products widely sourced by the media and other public entities. The program leaders include undergraduates in their research programs and in the development of data product and publication outputs (e.g., sea level rise adaptation plans for the National Park Service and NOAA, coastal impact plans for dam removal in the Elwha River Dam, and maintenance of multiple large data bases for coastal processes such as the storm surge viewer and the beach nourishment viewer). PSDS program leaders are also engaged in significant service to federal, state, and local communities on issues related to coastal processes. At WCU, the PSDS has also expanded into areas beyond simply coastal processes, but related to its geological foundation. It is a tremendous resource for students at WCU and at Duke and it would be beneficial if it was promoted more conspicuously as an opportunity for students throughout the system.
- North Carolina Sea Grant (NCSG).** NCSG is a federal, state, university

partnership that engages North Carolina institutions through research, education, and extension projects to foster science-based decisions about the use and conservation of marine resources. Its administrative base is at NC State in Raleigh but it has staff located at UNCW, CMAST, and UNC-CSI, thereby functioning as a bridge that links many of the UNC System's marine-related activities. It facilitates inter-institutional engagement, acts as an "honest broker" to translate research to application, and has a rapid funding mechanism that can be used to address critical issues that arise. In addition, it supports a North Carolina Coastal Resources Law, Planning, and Policy Center on the NC State and UNC-CH campuses. NCSG is nationally recognized for its excellence, consistently ranking at or near the top of the 32 SG College Programs by NOAA Sea Grant National Office reviews. The program provides North Carolina with identifiable impacts and offering significant return on dollars invested. It has strong partnerships across North Carolina in academic and non-academic sectors.

Major Challenges Limiting the Impact of UNC Activities

The AAAS panel recognized that the UNC marine-related activities were facing challenges common to many other programs across the country, in addition to some that were unique to the specific circumstances of individual institutions. The changing face of higher education across the country as well as looming budget challenges are felt by all higher education institutions, and are particularly acute for marine-related programs that depend so heavily on external funding to support research and graduate education. Many state-funded universities are recognizing that they are morphing into state-located universities as their percentage of state funding drops. Public universities can either recognize the changing fiscal environment or face prolonged financial stress, deteriorating quality, and eventual decline (“death by a thousand cuts”). Adapting to the changing landscape requires strong leadership and strategy to replace state revenues with alternate sources of funding, as well as efforts to control costs in innovative and unprecedented ways.

The marine-related activities within the UNC system have tremendous potential to be able to not only weather this difficult period, but position themselves strategically to adapt and evolve to new ways of doing business and serving research, educational and societal missions. Perhaps one the greatest obstacles to achieving this goal for the UNC marine programs is the lack of clear coordination and a statewide strategic vision for marine science. This has implications for the visibility and branding of marine science in North Carolina that is necessary for effective advocacy and communication within the UNC system, but also for communication with political and public sectors. The lack of leadership and coordination is also an impediment to effectively leveraging the depth and breadth of expertise and facilities across the UNC system to enhance capabilities to secure external funding and attract investment. In the remainder of this section, the AAAS panel considers challenges associated in the areas of people, equipment and facilities (as per the AAAS charge) as well as other areas identified by the panel.

People (teams, PIs, students, post docs). As noted under *Strengths* in the previous section, the researchers that the AAAS panel met were committed and dedicated. The various programs possess a broad range of individual talent, experience, and expertise and the faculty are true assets. Having said this, not all programs were “equal” in the sense that some programs such as WCU and ECSU have only a small number of faculty members in marine or environmental science programs serving a relatively large number of students. The UNC System may wish to examine whether strategic additions in faculty to these programs could yield benefits for broadening participation and enhancing diversity in marine science programs as well as Science, Technology, Engineering, Mathematics (STEM) education in general. Such programs may also have value as “feeder” schools for graduate programs elsewhere in the State. In addition to WCU and ECSU, UNCW also noted concerns about the number of faculty required to meet the teaching demands for their degree programs. Based on national trends, attrition due to faculty retirement is likely to be a challenge for all programs and something each program should consider in developing strategic plans for hiring new faculty at the institutional level as well as across the UNC

system as a whole.

Finally, there were recurring themes in the self-studies about the challenges of recruiting and funding graduate students. Unlike some other professional programs, marine science programs traditionally provide support for their students, who are routinely expected to work on ongoing research projects. The ability to offer financial support is a major benefit to efforts to recruit

and retain high-caliber students. As funding becomes more constrained, so too will support for graduate students and institutions will have to expand and diversify the sources and strategies for funding students. This must necessarily involve efforts to secure funding for students through competitive educational grants, involvement of students in undergraduate teaching as teaching assistants, cooperative programs with private or public sector entities, and part-time students in employment situations that permit them to devote the necessary time to be successful in a degree program. Programs that explore alternative course delivery options (on- line, night and weekend course delivery, etc.) that are more accessible to the part-time or professional student should also be encouraged.

With regard to recruitment, the AAAS panel was provided with insufficient information to comment much about activities either at the institutional or system levels. Yet recruitment is a growing challenge as programs find themselves increasingly in competition not only with other marine programs, but with other fields as well. This is another example of how leadership at the UNC system level could benefit the entire UNC marine science effort through coordinated recruiting and branding of the marine science activities statewide.

Equipment. As was already noted, the nature of marine science research necessitates the use of expensive and highly-specialized equipment and analytical instruments. The various UNC coastal sites as well as their parent marine programs at the home institutions have an impressive inventory of state-of-the-art equipment and instruments. An emerging challenge faced by marine institutions in general is how to acquire and maintain such items and achieve an optimal level of use. The AAAS panel found very different strategies for dealing with expensive equipment used in marine-related research in the UNC system. On one end of the spectrum, UNCW openly shares its equipment with other users in the UNC System in return for reimbursement for supplies. Maintenance of the equipment is supported through return on indirect funds. Other institutions such as IMS operate their equipment as cost centers. Clearly, this is another area where inter-institutional coordination to facilitate shared use of expensive and highly-specialized equipment may be beneficial. Obviously, there are challenges to these types of arrangements, and different business models (e.g., UNCW or IMS) may be more or less appropriate to specific situations. However, UNC leadership might want to consider identifying centers of excellence for certain types of analytical capabilities that can serve multiple institutions where feasible. Strategies for coordinated asset development and usage will make UNC more competitive especially in an uncertain science funding climate. For example, as funding for start-up packages and major research instrumentation becomes more difficult to obtain, innovative thinking around partnerships will be necessary for universities across the nation.

Research Support Facilities. Facilities, especially research facilities, are expensive to operate and maintain and such costs are being scrutinized heavily as university budgets face rising costs and declining revenues. Additionally, while some facilities are relatively new and in excellent conditions (e.g., new buildings on UNCW campus, UNC CSI), other sites such as the IMS facilities are showing signs of age. Moreover, it was communicated to the AAAS panel that maintenance of the IMS facilities and possibly other sites are not part of system-wide or university capital improvement plans, leaving the burden of maintenance to fall on the individual laboratory. This is an unsustainable situation and the UNC system is encouraged to consider a more proactive approach to regular maintenance and upkeep of coastal facilities in conjunction with overall capital improvement schedules.

Two areas for which there was strong interest from UNC Activities were a functional coastal vessel and for dormitory space at coastal facilities. The retirement of the R/V *Cape Hatteras* was an external decision on the part of the National Science Foundation, which withdrew its support due to declining usage of vessels in the R/V Cape Hatteras class as well as considerations of its age and capability^{11 12}. This loss hampers the ability of UNC marine programs to provide both faculty and students readily available at-sea experience. An alternative that seemed to have considerable support was to acquire a smaller and more versatile moderate size catamaran vessel that could still maintain the needs of both research and educational activities. The AAAS panel encourages the UNC System to examine whether the operation of such a vessel could be financially sustainable given the multiple potential users within and outside the system of such a vessel within North Carolina as well as the external user community.

The need for dormitory space at coastal facilities was another area of common interest. Such facilities seem justifiable given the growing need to engage undergraduates in marine science as well as providing housing for graduate students, faculty and visitors conducting research at coastal sites. Summer experiences for undergraduates are perhaps one of the most effective ways to enhance the visibility of the marine programs across the State and garnish public awareness and support for these activities.

Other. The UNC system has various academic programs at the Bachelor's, Master's and Ph.D. levels. While a detailed assessment of each goes beyond the scope of the AAAS charge, it is recognized that academic programs are a critical aspect of the UNC marine programs. Despite their importance to the core mission of the various institutions, barriers to academic collaboration present a challenge for realization of the true potential for the UNC system to deliver a superior marine science curriculum. Various approaches to break down these barriers have already been suggested including system-wide courses, system-wide degree programs at the Master's or Ph.D. level, and distance learning and on-line delivery. Such activities may also help to overcome the challenges inherent in the geographic separation between the institutions as has been noted previously.

Even with these changes, an even greater challenge may be a reluctance on the part of some institutions to embrace such initiatives. The AAAS panel found that some individuals were

reluctant to change the way their programs operate. In contrast, others were enthusiastic about this.

Another challenge seen by the AAAS panel was the lack of a system-wide communication strategy and clear branding for UNC marine science activities. For example, it was previously suggested that a branding of the UNC marine science activities as the “Marine Triangle Partnership” analogous to the Research Triangle in Raleigh/Durham might be advantageous. Communicating the unique qualities of each institution and the breadth and depth of facilities, infrastructure and expertise would be a powerful message.

Declining fiscal resources and increasing operational costs plague UNOLS (the University---National Oceanographic Laboratory System – www.unols.org) which operates our nation’s research vessels. The loss of the vessel in North Carolina reflects an increasing challenge to maintain seagoing activities nationally. This situation is expected to get only worse in the future, as discretionary budgets get squeezed even further and as the cost of fuel continues to rise.

¹² A Sea Change for U.S. Oceanography.” *Science* 339 (2013)

The Degree to Which UNC Activities Coordinate

Substantive research collaborations already exist among institutions at the principal investigator level. Opportunities for coordination at the inter-institutional level have been discussed and include academic activities (system-wide courses, degree programs, on-line courses and distance learning) as well as messaging and public relations, and facilities and infrastructure.

The AAAS panel notes that attempts to develop coordinating councils in the past were apparently hampered by “turf” issues or lack of engagement. Over the years, a number of advisory boards, task forces and working groups have formed. In general, faculty impressions were that these entities had limited impact and some faculty expressed skepticism about these past efforts and their effectiveness. The North Carolina Alliance in Marine Science (NC AiMS) has been proposed by the Chancellor of UNCW to align marine programs in North Carolina, but whether other campuses buy-in to this is unclear.

The Marine Science and Education Partnership includes UNC-CH-IMS, NCState CMAST, Duke University Marine Laboratory, East Carolina University, NOAA, North Carolina Sea Grant and various community colleges, public school systems and other state and county agencies. This program appears to have merit, but excludes some programs and there was little information provided about it or its accomplishments.

One area of promising coordination was the relationship between the Marine Biotechnology in North Carolina (MARBIONC) and the Marine Bio-Technologies Center of Innovation (MBCOI) both at UNCW. These entities bring together researchers with private sector entities to support business incubator and economic development efforts around marine biotechnology initiatives. Another positive example of coordination was the Duke-UNC Oceanographic Consortium (DUNCOC), which was a multi-institutional consortium with the mission of operating the research vessel *Cape Hatteras*. The R/V *Cape Hatteras* has since been retired, and the fate of DUNCOC is uncertain. Thus, while some examples of coordination exist, the scope of these entities appears to be limited to specific thematic areas and none of them has a comprehensive mission.

Areas where coordination may be particularly advantageous include shared use of facilities. Some sharing of facilities is already occurring in specific situations, but much more can be achieved. Doing so, will not only achieve economies and leverage funding, but it will also increase impact. UNC Chapel Hill IMS houses space for North Carolina State CMAST in their seawater lab facility. A new coastal vessel would serve multiple users within the UNC system. This is especially important given the recent retirement of the R/V *Cape Hatteras*.

As was previously noted, the expansion of dormitory facilities that could house students from the main campuses at the coastal sites was a common theme across all the institutions. Summer programs at IMS and CMAST are constrained by dormitory space. In addition,

educational programs at UNC CSI would also benefit from summer housing. This seems to be an obvious area where coordination and shared use of facilities would be beneficial.

While all institutions were engaged in outreach activities to some extent, some programs stood out. UNCW had various interactions with other institutions including student internships at state, federal and non-profit agencies. The Marine Quest program at UNCW is a receipt-

supported activity providing experiential learning opportunities for graduate, undergraduate and K-12 students. UNCW CMS was proactive in integrating marine science into various programs on the main campus. The summer programs at IMS, CMAST, and CSI could all be expanded.

Another strong program was the Program for the Study of Developed Shorelines at WCU.

A major obstacle in coordination will be leadership. If any one institution appears to be taking the lead, other institutions may see this as a threat to their independence and stature related to marine science. Accordingly, leadership will be a challenge and a clear vision must be communicated as to what is the goal of this effort, what are the benefits, and how governance will be shared among the various institutions. Some agreement on how leadership for specific areas will be allocated among the institutions may be one approach for gaining acceptance of this concept. Limits to fiscal resources will always exist, and may even get worse. All entities must strive to work together to minimize costs and maximize benefits.

The Degree to Which UNC Marine Activities Overlap

The AAAS panel saw in each of the institutions a unique set of strengths and capabilities. Overlap in the expertise and research foci were minimal based on the self-studies and interviews with the UNC partners. While it could be argued that having three different coastal sites is duplicative, the case has been made that each of these coastal facilities is located in distinct geographic regions of the State and also serve different purposes. For example, the oyster research being done at UNCW and IMS involved differences in research priorities and each of these activities served a regional need to support the oyster fishery.

As already discussed, many of the marine institutions shared in the operation of the R/V *Cape Hatteras* prior to its retirement. Rather than overlap, this vessel provided a common platform that accommodated multiple and different uses specific to not only the UNC institutions, but to external users from across the country as well. All the marine programs would benefit from having a shared coastal vessel for example, and this would be consistent with the model used to operate the R/V *Cape Hatteras* by a consortium. Thus, such a model for vessel operation would increase efficiency and provide a more effective use of the vessel.

Dormitory facilities on the coast could also potentially be expanded and shared among institutions. This seems most logical in the case of CMAST and IMS, which are neighbors and both have need of student and faculty housing. These organizations already share seawater facilities so the shared operation of a dormitory is a logical extension.

The AAAS panel found that the academic programs exhibited unique strengths and curricular emphases. The panel still encourages the UNC System to examine the feasibility of a system- wide Ph.D. as other forms of academic collaboration and coordination. This would serve to ensure minimal overlap in the future as well as provide access to students to a wider range of options.

In summary, the AAAS panel did not identify any areas where there was obvious redundancy or overlap in programs. Rather, the various marine activities of the UNC System comprise a rich and diverse assemblage, the potential of which can be fully realized through improved coordination and collaboration.

Appendix: UNC Activities Included in This Review

Universities and Activities

The following institutions and Activities submitted self-studies for inclusion in the AAAS review.

East Carolina University

- Institute for Coastal Science and Policy
- PhD Program in Coastal Resources Management
- Program in Maritime Studies
- Other Centers and Programs
 - PhD in Economics
 - RENCI@ECU
 - Center for Sustainable Tourism
- Departments with Significant Coastal Components
 - Geological Sciences
 - Biology
 - Geography
 - Other: COAS minor

Elizabeth City State University

- The Marine Environmental Science Program
- Undergraduate Research Experience in Ocean, Marine, and Polar Science
- Center for Remote Sensing of Ice Sheets

North Carolina State University

- Department of Marine, Earth, and Atmospheric Science
- Center for Marine Science and Technology
- Coastal and Marine Science Faculty

University of North Carolina at Chapel Hill

- Department of Marine Sciences
- Institute of Marine Sciences

University of North Carolina General Administration

- University of North Carolina Coastal Studies Institute*
- North Carolina Sea Grant College Program*
- Water Resource Research Institute*

University of North Carolina at Wilmington

- Center for Marine Science
- MARBIONC (Marine Biotechnology in North Carolina)
- Department of Biology and Marine Biology
- Department of Chemistry and Biochemistry
- Department of Environmental Studies
- Department of Geography and Geology
- Department of Physics and Physical Oceanography
- Department of Public and International Affairs
- Watson College of Education

Western Carolina University

- Program for the Study of Developed Shorelines

* Inter-institutional Institutes/Programs of the UNC System

Appendix: AAAS Panel Member Biographies

Review Panel Members

Dr. Christopher F. D'Elia earned his A.B. in Biology from Middlebury College, his Ph.D. in Zoology from the University of Georgia, and did postdoctoral work at UCLA and at the Woods Hole Oceanographic Institution. Prior to joining Louisiana State University in July 2009 as Professor and Dean of the School of the Coast and Environment, he was Associate Vice Chancellor for Academic Affairs for Research and Graduate Studies and Professor of Environmental Science & Policy and Marine Science at the University of South Florida St. Petersburg. There he also directed the International Ocean Institute-USA and the Center for Science and Policy Applications for the Coastal Environment and served from 2007- 2008 as Interim Vice Chancellor for Academic Affairs. He has also held professorships in Biological Science and Public Administration and Policy and was Vice President for Research & SUNY Research Foundation Operations Manager at the University at Albany, SUNY. From 1977-1999, he was a Professor at the Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science. He served as Director of the Maryland Sea Grant College Program of the University System of Maryland from 1989-1999. He has held appointments as the Ruth Patrick Distinguished Scholar in Aquatic Science at the Academy of Natural Sciences (Philadelphia), as the Director of the Biological Oceanography Program at the National Science Foundation in Washington, D.C. and as Provost and Vice President for Academic Affairs at the University of Maryland Biotechnology Institute. Dr. D'Elia has held numerous research grants and has authored or coauthored over sixty scientific publications on the nutrient dynamics of estuaries and coral reefs, and on science policy. He is a Fellow of the American Association for the Advancement of Science and has served on numerous advisory panels to the National Science Foundation and other federal, state and private funding agencies. He was elected to membership in the Cosmos Club, Washington, DC, in 1994. Dr. D'Elia is a former President of the Estuarine Research Federation and former Chair of the Board of Directors of the Council of Scientific Society Presidents. He has chaired the Mid-Atlantic Regional Marine Research Board and the Public Affairs Committees of the Ecological Society of America and of the American Society of Limnology and Oceanography. He has served twice as President, and as Co-Chair of the External Relations Committee, of the Sea Grant Association. He has been a member of the Scientific and Technical Advisory Committee to the Chesapeake Bay Program and has been Co-Chair of the Legislative Committee of the Commission on Food, Environment and Renewable Resources and Co-Chair of the Board on Oceans and Atmosphere of the National Association of State Universities and Land Grant Colleges (NASULGC), and a member of the Executive Committee of the NASULGC Council on Research Policy and Graduate Education. He has been a member of the Board of Directors of the Hudson River Foundation since 1998 and also served as Chairman of the Executive Board of the Science Center of Pinellas County until from 2007 - 2009. He is serving a second 3-year term as a member of the U.S. National Committee for the Intergovernmental Oceanographic Commission of UNESCO representing the Coastal and Estuarine Research Federation. He is also a board member and Chair of the Southeastern Universities Research Association's (SURA) Coastal and Environmental Research Committee, a member of the Board of Directors for the Baton Rouge Symphony Orchestra, a principal and former chair of the Gulf of Mexico University Research Collaborative and the Louisiana University Gulf Research Collaborative, and serves as Principal Investigator of the LSU component of the USDI South Central Climate Science Center.

Dr. Jacqueline Dixon is Dean of the College of Marine Science at the University of South Florida. She obtained her B.S. and M.S. degrees in geology from Stanford University in 1981 and 1983 and her Ph.D. in geochemistry from Caltech in 1992. Her academic career began as an Assistant Professor in Marine Geology and Geophysics at the University of Miami's Rosenstiel School of Marine and Atmospheric Science in 1992. She is an internationally recognized leader in her field of igneous geochemistry with 36 published articles in top-ranked journals, including *Nature*. Her research specialties are mantle geochemistry and submarine volcanism. Specifically, her research focuses on the role of volatiles, mainly H₂O and CO₂, in the generation and evolution of mantle melts. She received an Early Career award in 1997 for excellence in research and education. In 2007, a premier journal in her field (EPSL)

acknowledged one of her papers as one of their top-50 most cited articles. Prior to her arrival at the University of South Florida in 2011, she served one year as Interim Dean of the College of Arts and Sciences at the University of Miami, three years as Senior Associate Dean for the Life and Physical Sciences in the College of Arts and Sciences, and five years as Director of the undergraduate program in Ecosystem Science and Policy. She was recently elected as a Trustee of the Consortium for Ocean Leadership. She is a member of the American Geophysical Union, the Geochemical Society, the International Association of Volcanology and the Earth's Interior, and the American Association for the Advancement of Science.

Dr. Steven E. Lohrenz is Dean and Professor of the School for Marine Science and Technology (SMAST) at the University of Massachusetts Dartmouth. Prior to becoming Dean of SMAST, Steve served as Chair of The University of Southern Mississippi (USM) Department of Marine Science, located at the NASA John C. Stennis Space Center. He received a B.A. in biology and chemistry from the University of Oregon (1978) and a Ph.D. in biological oceanography (1985) from the Massachusetts Institute of Technology---Woods Hole Oceanographic Institution Joint Program, and was a National Research Council post-doctoral fellow at the Naval Ocean Research and Development Activity (now part of the Naval Research Laboratory). His research extends across various themes of biological oceanography including phytoplankton physiology, community structure, ecology, primary production, biogeochemical cycling, and terrestrial---ocean interactions. His current work also includes applications of optics and remote sensing in the study of biological and biogeochemical patterns and processes in aquatic environments. He has authored or co---authored more than 60 papers in refereed literature and participated in more than 50 research cruises. He is a Contributing Editor for Marine Ecology Progress Series. He currently serves on the Board of Directors of the Northeast Regional Association Coastal Ocean Observing System and is Councillor-at-large of the Oceanography Society. He is a Trustee for the Consortium for Ocean Leadership, and is chair of the Consortium's Ocean Observing Subcommittee. He was formerly co-chair of the Board on Oceans and Atmosphere of the National Association of State Universities and Land Grant Colleges (now the Association of Public and Land Grant Universities). He has served on numerous other

advisory groups including the Carbon Cycle Science Working Group (2009---2011) and the Ocean Carbon

and Biogeochemistry Steering Committee (2006---2011), and the NASA Geostationary Coastal and Air Pollution Events (GEO---CAPE) Satellite Mission Science Working Group (2011-present). He is a member of the American Geophysical Union, the American Society of Limnology and Oceanography, the American Association for the Advancement of Science, the Optical Society of America, and the Oceanography Society.

Dr. Nancy Targett (Chair) is Dean of the College of Earth, Ocean, and Environment (CEOE) at the University of Delaware and Director of the Delaware Sea Grant College Program. During her tenure as Dean she has broadened the focus of her college to include Geological Sciences, Geography, Environmental Science and Environmental Studies in addition to the Marine Science and Policy Programs that were always the core of the college. The college turned 40 in June 2010 and what began as the Graduate College of Marine Studies, now, 40 years later, has both an undergraduate and graduate presence and is well-integrated into the fabric of the University. In 2008 she chaired a task force that developed a curriculum that would ensure that students received a truly multidisciplinary exposure to the issues in environmental science, while still getting the depth of disciplinary content necessary to be successful. The result was a cross-college multidisciplinary program established in September 2009 that is training tomorrow's environmentally-focused leaders. To model environmental sustainability and provide a platform for research efforts aimed at catalyzing the offshore wind sector, she built a utility-scale (2 MW) wind turbine at the Lewes campus. The turbine provides enough green energy to cover all of the campus' electrical needs. CEOE has a world-wide footprint with research programs that extend across the globe from the upper atmosphere to the land to the bottom of the ocean. Four years ago, Nancy initiated collaboration with Xiamen University and their College of Marine and Environmental Science. That effort now includes a dual Ph.D. degree program in Oceanography and has catalyzed interactions with XMU beyond CEOE such as the recently established Confucius Institute located at UD.

Nancy just completed her term (2010-2013) as chair of the Board of Trustees for the Washington D.C.-based Consortium for Ocean Leadership, a 96 member group of academic institutions, industry and NGOs with a focus on ocean issues. She is also an Aldo Leopold Leadership Fellow. A past officer of the International Society of Chemical Ecology, she has served on numerous editorial boards and been appointed to various national and regional scientific councils and committees. She has served on the National Academy's Ocean Studies Board and chaired or been a member of several of its study committees. She has also served on the Mid-Atlantic Fisheries Management Council and chaired the science and statistics committee and several species committees. Nancy is a past officer of the Sea Grant Association and currently serves as its treasurer. She lives in Sussex County. There she was a founding board member of the Jefferson School, an independent day school located in Georgetown, Delaware, and of the Sussex Academy of Arts and Sciences, a charter middle school also located in Georgetown, Delaware. She served terms as chair for both boards. She also served as a member of the board of St.

Thomas More Academy High School in Magnolia. Currently she is a member of the boards for the Greater Lewes Foundation and for Cadbury Continuing Care.

AAAS Staff

Dr. Rieko Yajima is a Project Director with the AAAS Research Competitiveness Program (RCP), where she has led over 35 projects providing clients with technical assistance for improved research, development, and innovation strategies. Her expertise is in evaluating the outcomes and impacts of scientific research, as well as planning and implementing programs for strengthening research capacity and competitiveness. She recently led a comprehensive evaluation of the Marine Microbiology Initiative: a 10-year, \$145-million effort to answer fundamental questions about the immense diversity of marine microorganisms and their roles in ocean health, funded by the Gordon and Betty Moore Foundation in Palo Alto. Rieko has organized symposia on emerging interdisciplinary topics for the AAAS annual meeting on research collaborations between artists and scientists, as well as the science behind delicious food. Trained as a biochemist, Rieko received awards for her Ph.D. research on RNA enzymes and has published over 10 research and review articles on the molecular structure and function of protein and RNA enzymes. Prior to AAAS, she was also a Science Policy Fellow at the National Academy of Sciences in Washington, D.C..