UNC CHARLOTTE

February 18, 2013

Dr. Chris Brown
Vice President for Research and Graduate Education
General Administration
University of North Carolina
Post Office Box 2688
Chapel Hill, North Carolina 27515-2688

Dear Dr. Brown:

Enclosed is UNC Charlotte's Request for Authorization to Plan a M.S. in Data Science and Business Analytics. The Data Science and Business Analytics program is an interdisciplinary Professional Science Masters (PSM) at the intersection of business, computer and information sciences, statistics, and operations research. As a PSM, the program combines the strengths of the Belk College of Business and the College of Computing and Informatics to provide education and research activities that focus on real-world challenges and engage with the larger business community.

Thank you for your consideration of this request. Provost Joan Lorden or I would be pleased to respond to any questions that you may have.

Cordially,

Philip L. Dubois
Chancellor

cc: Provost Joan F. Lorden
        Dean Steve Ott
        Dean Yi Deng
        Cody Thompson, UNC General Administration

Per the academic planning guidelines, please submit to cthornton@northcarolina.edu a response to the questions itemized below within four weeks. You may submit a separate document with your responses instead of directly revising Appendix A. Please do not hesitate to contact Dr. Chris Brown or me with any questions.

1. ***Enrollment projections:*** *Outside of the insights on NCSU's 300+ annual applications, what information was used to inform the enrollment projections for both full- and part-time students?*

Big Data is transforming every industry – from financial services and retail to healthcare and manufacturing – and business leaders often struggle with how best to understand, analyze and use this information to make business decisions and remain competitive. They also struggle with a dearth of workforce talent. The consulting firm McKinsey (May, 2011) estimates that by 2018, the U.S. will have a deficit of nearly 200,000 professionals with deep analytical skills, and will need to employ 1.5 million managers who understand the value of data and know the right questions to ask. It is estimated that these numbers approach 5,000 professionals and 40,000 managers in North Carolina alone. A study by Accenture (October, 2012) reports that the United States is projected to create 44 percent of the new jobs for analytics experts but only 23 percent of the supply suggesting a significant mismatch between the need for analytics experts and domestic universities' ability to supply that talent. Professionals who possess industry knowledge, data science expertise, and the communications and leadership skills needed in business are particularly hard to find.

Research suggests that the gap in North Carolina may be even wider that the U.S. as a whole. A study by the Technologies Councils of North America (November, 2012) found that 73 percent of the respondents reported that big data analytics, data mining and business intelligence would significantly contribute to the growth in North Carolina over the next two years. Nationally this was reported as 64 percent. In the same study 61 percent of respondents reported a moderate shortage and 11 percent reported a significant shortage in technology talent in the North Carolina.

Anecdotal evidence from major employers in the region further supports the need for analytics expert talent.   Guenther Hartfeil, Director of Client Insight and Innovation at BB&T, notes that "BB&T recognizes that information and analytics will be a significant contributor to future growth and, in turn, a broader and deeper skill set in these areas is required." In remarks about the need for employees with both technology and information management skills as well as business skills, Hartfeil comments that "there simply are not enough people with the right amount of knowledge that cut across these areas". These remarks are echoed by Brian Marley, Executive Vice President/Chief Financial Officer at Belk, Inc. in his comments about UNC Charlotte:

> "The great news in all of this is that it appears the University is uniquely qualified to satisfy this need. With strengths already in business, computing, informatics and mathematics, as well as a collaborative culture, we're fortunate to have the basic building blocks in place. The even better news for the people of North Carolina is that as we look to build employment and transform our economy, these are very high skill and valued positions for today and tomorrow."

Michael C. Tarwater, Chief Executive Officer at Carolinas HealthCare supports the program by saying:

> "This program will bring a unique and highly sought after skillset to market for our organization and others that are advancing in the field of analytics. There is a present need for a skilled analytical workforce but it will continue to grow with no limits in sight."

Finally Mark Wyatt, Vice President of Grid Modernization at Duke Energy supports the program with the following comment:

> "The Belk College and the College of Computing and Informatics have the unique opportunity to leverage technical and business faculty expertise combined with strong business partnerships to develop a new generation of data scientists, business analysts and managers. Located in a region with large data-intensive industries, UNC Charlotte is well positioned to be a leader in talent development and research. I see this as a win-win situation for UNC Charlotte and for the business community."

Clearly these data substantiating the gap between the supply and demand for data science and business analytics talent in the U.S. and in North Carolina combined with the comments from major employers in the region and state supporting their need for talent and their perception that UNC Charlotte can play a major role in supplying this talent provide evidence that a large pool of students will find the Professional Science Masters' degree in Data Science and Business Analytics attractive. Newly created jobs exist at very competitive salaries and companies are looking to promote employees who gain strong data science and business analytics skills. Like the NCSU program, we anticipate a larger pool of students than we have the capacity to serve. The expected enrollment is more a reflection of our capacity rather than our expectation of interest in the program.

2. ***Impact on existing programs:*** *What are current enrollments in the existing MBA /Business Analytics concentration at UNCC? Will that concentration continue should the proposed program be approved? What are the differences in job opportunities for those graduates versus graduates of the proposed program, and can evidence be supplied in this regard?*

Currently we have 300 students in the MBA program and 20 of them are pursuing the Business Analytics concentration. We intend to continue to offer the Business Analytics concentration that is comprised of three courses: MBAD 6201 Business Intelligence and Analytics, MBAD 6122 Decision Modeling and Analysis via Spreadsheets, and MBAD 6207 Project Management. We expect that enrollment in this concentration will remain steady even with the introduction of the PSM. The PSM and the MBA concentration in Business Analytics are not substitutes as is explained below.

The main goal of the MBA program is to develop effective and ethical managers in a variety of organizational settings. The Business Analytics concentration is designed to improve students' understanding of the value of data driven decision making and know what questions to ask, and have a general knowledge of the methods and technologies used in the field. A Business Analytics

concentration in the MBA provides students with a foundation for understanding the issues associated with big data but does not provide the depth of analytics and computer science/information systems that is provided in a Data Science and Business Analytics PSM.

On March 20, 2012 fifteen invited participants from leading local industries (Bank of America, Wells Fargo, Duke Energy, Belk, Lowe's, Carolinas Healthcare System, Ernst and Young, CSG Systems) and leading analytics services and software providers (IBM, SAS) met with the joint BCOB-CCI PSM Planning Committee to discuss the objectives of the program. Participants identified the key skills needed by graduates of the program, and discussed the program curriculum and structure. These industry partners expressed strong support for the proposed program validating the need for analytics professionals, offering to involve key employees, and offering internship and project opportunities for students in the program (a PSM requirement). A consensus emerged from the meeting that companies interested in big data analytics were looking for an alternative to MBAs and computer scientists. Candidates for jobs as data scientists and business analysts would ideally have business, statistics/modeling, computer science/technology and soft skills.   The PSM in DSBA is designed to provide those skills.

It was unclear if the existing BoA Applied Technology Program (ATP) and planned TIAA-CREF internship programs are happening as part of another existing PSM program at UNCC – please clarify. If so, explain the distinctiveness between that degree program and the one proposed.

Both the Bank of America ATP and the planned TIAA-CREF internships have no connection to any existing PSM programs at UNC Charlotte. The Bank of America ATP internship is specifically for undergraduates in CCI and BCOB. The Bank of America ATP program and the planned TIAA-CREF internships were mentioned to illustrate the strong interest of local employers in hiring UNC Charlotte students as interns and in establishing collaborative internship programs. Students who complete the ATP internship will be ideal candidates for the PSM in DSBA.

3. **Resources:** *Will any graduate assistantships be offered, and if so, how will they be resourced?*

Graduate assistantships will be offered to full-time students on a competitive basis based on merit and need. Since this program is expected to attract both full-time and part-time students, part-time students would not be eligible for awards. We anticipate that these assistantships will be funded by a campus based tuition increment and by private gifts.

Fund raising has already started for the data science and business analytics initiatives at UNC Charlotte. The Professional Science Masters' degree would be an important component of this initiative. In a recent $5 million gift to the Belk College of Business from Belk, Inc., $1.5 million was earmarked for an endowed professorship in marketing analytics and $1.5 million was provided to support a scholars program to provide scholarships for high potential undergraduate business students to groom them for careers in analytics and for quantitative masters' programs like the Professional Science Masters' degree in Data Science and Business Analytics. The gift also included $1 million for faculty research and teaching grants in the area of analytics that may provide support for DSBA students who work with faculty. The willingness of one of the region's major employers to provide a significant contribution to our analytics initiative plus the expressed support by other top employers suggest an opportunity to develop private funding for assistantships and scholarships.

APPENDIX A

UNIVERSITY OF NORTH CAROLINA

REQUEST FOR AUTHORIZATION TO PLAN
A NEW DEGREE PROGRAM

THE PURPOSE OF ACADEMIC PROGRAM PLANNING: Planning a new academic degree program provides an opportunity for an institution to make the case for need and demand and for its ability to offer a quality program. The notification and planning activity to follow do not guarantee that authorization to establish will be granted.

Date: 2-15-13

Constituent Institution: The University of North Carolina at Charlotte

CIP Discipline Specialty Title: Management Science and Quantitative Methods, Other

CIP Discipline Specialty Number: 52.1399 **Level: B** _____ **M** X **1st Prof** _____ **D** _____

Exact Title of the Proposed Program: Data Science and Business Analytics

Exact Degree Abbreviation (e.g. B.S., B.A., M.A., M.S., Ed.D., Ph.D.):   M.S.

Does the proposed program constitute a substantive change as defined by SACS? Yes X **No**

> **The current SACS Substantive Change Policy Statement may be viewed at:**
> *http://www.sacscoc.org/pdf/081705/Substantive%20Change%20policy.pdf*

If yes, please briefly explain.

As required by the Policy Statement on Substantive Change for Accredited Institutions of the Commission on Colleges, the University of North Carolina at Charlotte (UNC Charlotte) is required to submit a letter of notification prior to implementation for new degree programs. Notification of this new degree program will be provided to SACS after approval by the University of North Carolina Board of Governors and prior to implementation.

Proposed date to establish degree: *Month* August   *Year* 2013

1.	**Describe the proposed new degree program. The description should include:**

	a.	**a brief description of the program and a statement of educational objectives**

		The Data Science and Business Analytics (DSBA) program is an interdisciplinary program at the intersection of business, computer and information sciences, statistics, and operations research. Students entering the program are likely to

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[1]This Appendix A supersedes the preceding Appendix A entitled, "Notification of Intent to Plan a New Baccalaureate or Master's Program," adopted May 6, 2009.

have completed an undergraduate degree in economics, business, healthcare computer science, information technology or a quantitative discipline such as mathematics, statistics or engineering. The program gives students an understanding of business theory and practice as well as deep informatics and analytics skills, providing students with the knowledge and ability to lead in the development, evaluation, and deployment of data science and business analytics applications. The program is designed to graduate students well equipped for employment in a wide variety of data intensive industries such as financial services, energy, retail/supply chain and health care, where the need for business analysts with quantitative and computational skills is growing at an explosive pace.

The objective of the program is to develop analytics professionals to meet the growing need for these skills. Specific educational objectives of the program include:

1. Foundational understanding of:
   - business theory and practice,
   - information technology and computational analytics, and
   - statistical modeling and analysis.
2. Enhanced curiosity and critical thinking abilities.
3. Deep technical skills in predictive and prescriptive modeling to support business decision-making.
4. Ability to acquire, clean, and transform data and to translate data into clear actionable insights.
5. Effective communication skills that facilitate the effective presentation of analysis results to non-technical, business audiences.
6. Ability to manage and lead analytics projects and work in cross-functional business teams.

Given the likely broad spectrum of academic backgrounds and work experiences of successful applicants, students will take preparatory courses in business, mathematics and statistics, and computing as needed to build a foundation for further study. All students will take a set of core courses designed to build breadth in data science and business analytics (for example, courses in Data Mining and Knowledge Management, Big Data Tools, Marketing, Optimization, Advanced Statistics, and Visual Analytics). As in all professional science masters programs, courses will also be designed to build strength in communication and leadership skills. Core courses will emphasize the hands-on experience that is needed to develop practical analytics skills. Elective courses will be designed to provide an area of depth, such as consumer analytics, financial decision making, risk analysis or predictive modeling. The final component of the program will be an internship or capstone practicum to provide experience working with a business or organization. By focusing on industry case studies and examples in the courses, engaging guest lecturers from industry, and through the internship program or business practicum, we will equip students to be productive employees who are well versed in industry tools and practices.

b.   **the relationship of the proposed new program to the institutional mission**

The proposed Professional Science Masters (PSM) closely aligns with the UNC Charlotte mission as North Carolina's urban research university. It strongly supports the university's focus on community engagement, professional programs, and economic development for the Charlotte region and aligns with

the missions of the two participating Colleges: the Belk College of Business (BCOB) and the College of Computing and Informatics (CCI). The joint academic program in Data Science and Business Analytics combines the strengths of two colleges to enhance joint engagement in the larger business community through efforts such as the Data Science and Business Analytics Initiative and the Charlotte Informatics Conference, which involve all the major companies in the region as well as several entrepreneurial start-ups. In addition, a main objective of the PSM is to engage in educational and research activities that focus on real-world challenges and satisfy company needs in specific industries.

A strong demand exists for employees with data science and business analytics training. McKinsey estimates that U.S. organizations will create 290,000 to 340,000 "big data" jobs by 2018. More than half of those jobs will go unfilled given the present production of workers in this area. Building upon the expertise present in the BCOB and CCI along with the enormous interest and experience present in businesses within the region, UNC Charlotte has the opportunity to become a leader in master's-level data science and business analytics education. The Charlotte region and the state will benefit significantly from highly-educated data science and business analytics talent. Not only will the region increase its attraction for fast-growing, high-tech, high value companies, but employers such as banks, other financial institutions, energy companies, and health care providers may expand local job opportunities if enough of the right workers are available.   The PSM strategy of producing students with the right mix of analytics, programming, and business skills is already being used and bearing fruit in the successful Bank of America Applied Technology Program (ATP), jointly established by BCOB and CCI with the bank. The ATP is producing a new class of skilled technologists that are being hired into the business units. A similar program is under development with TIAA-CREF. We will coordinate these internship programs with the proposed PSM program to provide a substantial pipeline of "data scientists and business analysts" that meet the needs of regional companies and establishes UNC Charlotte as a leader in data science and business analytics education.

c.   **the relationship of the proposed new program to existing programs at the institution and to the institution's strategic plan**

The PSM in Data Science and Business Analytics will complement masters programs in computer science, information technology, and business administration (MBA) by providing a pathway from theoretical/foundational computational and business concepts to their verification in the field of business applications. Whenever possible, the PSM in Data Science and Business Analytics will use existing courses in areas that require deeper understanding of the relevant concepts. For example, students may opt to take some of the core and elective courses presently offered in the MS in Information Technology, MS in Computer Science, MS in Mathematical Finance or the Master of Business Administration degree programs.

The PSM in Data Science and Business Analytics will benefit especially from other PSM programs at UNC Charlotte. For example, the PSM in Health Informatics, offered jointly by the CCI and the College of Health and Human

Services, is designed to produce graduates in the burgeoning area of health-related data acquisition, storage, production, management, retrieval, analysis, and prediction. Although the Healthcare Informatics program is focused on graduating future health IT/data managers while the DSBA program is focused on graduating future business decision makers, the Health Informatics program will contribute to the PSM in Data Science and Business Analytics program by providing a significant number of healthcare use-cases for the study and implementation of analytical techniques in the Data Science and Business Analytics program. The Data Science and Business Analytics program will inform Healthcare Informatics students on effective analytical techniques that need to be mastered by the future Health IT data managers. This symbiosis of distinct yet related programs will ensure both an efficient use of university resources and a rich learning environment for our students.

The PSM in Data Science and Business Analytics (DSBA) is aligned with UNC Charlotte's strategic plan. The Academic Affairs Goal #1 is to "improve educational opportunities that respond to the intellectual and professional needs of the region". One of the action steps for meeting this goal is to "maintain a broad portfolio of masters' and baccalaureate programs." The PSM in DSBA will enhance the current portfolio of masters' programs and provide synergy with other analytics and informatics programs currently being offered. Similarly, the PSM in DSBA will contribute to Academic Affairs Goal #8, "To graduate students with the breadth and depth of knowledge and the intellectual and professional skills that prepare them for a productive life in an ever-changing world." One of the action steps for that goal is "Develop fundamental skills of inquiry in writing, mathematical and logical reasoning, information literacy and technology, and the sciences. The PSM in DSBA is designed to enhance all these skills at the graduate level.

d. **special features or conditions that make the institution a desirable, unique, or cost effective place to initiate such a degree program**

UNC Charlotte is situated in the region's largest city. Charlotte is ranked as the 17th largest U.S. city and is a financial, energy, healthcare, distribution and transportation center for the region. The business research company Hoover's lists 3,464 companies with $1 million or more in revenues located in Charlotte-Mecklenburg. Of these companies, 274 of the Fortune 500 companies have facilities in Charlotte with eight headquartered here, including Bank of America, Lowe's, Nucor, Duke Energy, Family Dollar Stores, Goodrich, Sonic Automotive, and SPX. Charlotte is also home to the third largest public healthcare system in the country, Carolinas Healthcare System. The business community provides strong support for UNC Charlotte and for the PSM in DSBA as evidenced by attendance of key regional companies at a recent forum designed to open a dialogue centered on the business case for the proposed PSM among BCOB, CCI and major business leaders.

UNC Charlotte and the Charlotte Chamber of Commerce jointly held an all-day conference focused on Big Data and analytics, "Charlotte Informatics 2012", on May 16, 2012, in uptown Charlotte. This conference attracted more than 300 executives and technology specialists, representing the leading industries in

Charlotte, as well as university faculty. Panel discussions at the conference identified Charlotte's opportunity to become an informatics hub, and the need to develop regional strategies to achieve this vision. One of the principal challenges for Charlotte is to attract and develop the world-class talent that can accelerate the transfer of analytics and informatics technologies to local businesses, attract informatics-based companies to the region, and stimulate entrepreneurial activities in this space. The proposed DSBA program will provide the intellectual capital to help grow these industries by significantly strengthening their analytics capabilities.

UNC Charlotte is the only public doctoral research university in the Charlotte region and is well positioned, by virtue of the collaboration between the two colleges and their expertise in business, analytics, and informatics, to offer this program. In fact, it is the only university in the UNC system within 70 miles of Charlotte. The College of Computing and Informatics is a recognized leader in informatics, analytics, security, knowledge discovery, and complex modeling. The Belk College of Business is a recognized leader in graduate management education with a nationally ranked MBA program and additional graduate degrees in Finance, Mathematical Finance, Accounting, Real Estate, and Economics.

2.   **Provide documentation of student demand and evidence of the proposed program's responsiveness to the needs of the region, state, or nation**.

An in-depth study conducted by McKinsey & Company entitled "Big data: The next frontier for innovation, competition, and productivity" includes a detailed analysis of the talent necessary for organizations to take advantage of big data. Results suggest that while companies will recognize that harnessing value from Big Data will be a key determinant of competition in all sectors, it will be constrained by a significant shortage of talent, "particularly of people with deep expertise in statistics and machine learning, and the managers and analysts who know how to operate companies by using insights from Big Data." Results from the study project that the demand for deep analytical positions in the United States will exceed the supply being produced by 140,000 to 190,000 positions by 2018. Similarly by 2018 they project a need for 1.5 million additional managers and analysts in the United States who can ask the right questions and consume the results of the analysis of Big Data effectively. The McKinsey study also notes that the United States—and other economies facing similar shortages—cannot fill this gap simply by changing graduate requirements and waiting for people to graduate with more skills or by importing talent. They conclude that it will be necessary to retrain a significant amount of the talent in place. A recent article in *Inc. Magazine* placed analytics jobs among the five hardest jobs to fill in 2012 while *InformationWeek* reported that Big Data is widening the analytics talent gap. The *Information Week* "January 2012 U.S. IT Salary Survey: BI/Analytics" reports that during the recession the median cash compensation for business intelligence (BI) managers grew by 11.5%. The article also reported that individuals with skills that fit under the broad umbrella of BI, which encompasses analytics, are eminently employable. While the demand for professional business analysts is high, few master's-level programs provide this training.

To seek the input of local industry and inform industry leaders about the proposed program, the BCOB and CCI held the Data Science and Business

Analytics program planning forum at UNC Charlotte's Center City campus on March 20, 2012. Fifteen invited participants from leading local industries (Bank of America, Wells Fargo, Duke Energy, Belk, Lowe's, Carolinas Healthcare System, Ernst and Young, CSG Systems) and leading analytics services and software providers (IBM, SAS) met with the joint BCOB-CCI PSM Planning Committee to discuss the objectives of the program. Participants identified the key skills needed by graduates of the program, and discussed the program curriculum and structure. These industry partners expressed strong support for the program validating the need for analytics professionals, offering to involve key employees, and offering internship and project opportunities for students in the program (a PSM requirement).

3. **List all other public and private institutions of higher education in North Carolina currently operating programs similar to the proposed new degree program. Identify opportunities for collaboration with institutions offering related degrees and discuss what steps have been or will be taken to actively pursue those opportunities where appropriate and advantageous.**

- The Master of Science in Analytics offered by North Carolina State University (NCSU) is the first analytics degree offered in the state and in the nation. It is a full-time program and has a practicum requirement with a capacity of 80 students per year (Fall 2012).
- UNC Chapel Hill offers a track in Business Analytics in their Master of Science program in Interdisciplinary Statistics and Operations Research (INSTORE). The focus of this track in largely on deep statistical and operations research skills, rather than on a more comprehensive integration of business, Big Data, analytics, and informatics. This program also does not require any industry practicum or collaboration.
- UNC Charlotte does offer a MBA program with a concentration in Business Analytics, but this program does not have the level of specialization offered by the proposed program. Neither, does it offer the specialized informatics skills required for a successful career focused on business analytics.

The current and projected demand for analytics professionals far exceeds the planned programs throughout the State and the nation. Presently NCSU receives over 300 qualified applicants annually but can only admit 80. We anticipate the demand for our program to also greatly exceed capacity. We plan to explore collaboration with universities that have analytics or related programs such as North Carolina State University and University of North Carolina at Chapel Hill. Eventually, we would like to develop reciprocal course sharing agreements with these institutions. As other institutions develop analytics related programs, we will seek similar opportunities. UNC Charlotte is also involved with various statewide collaborative projects in informatics and analytics including as a member of the recently-established National Consortium for Data Science with NCSU, UNC Chapel Hill, and Duke University.

4. **Are there plans to offer all or a portion of this program to students off-campus or online? If so,**

The program will be offered on the UNC Charlotte Main Campus and the UNC Charlotte Center City Building. There are no plans to offer the program in any other locations.

a.   Briefly describe these plans, including sites and method(s) of delivering instruction.

b.   Indicate any similar programs being offered off-campus or online in North Carolina by other institutions (public or private).

c.   What is the estimated percentage of courses in the degree program that will be offered/available off-campus or online: _____

d.   Estimate the number of off-campus or online students that would be enrolled in the first and fourth years of the program:

>   *First Year Full-Time* _____ *Part-Time* _____

>   *Fourth Year Full-Time* _____ *Part-Time* _____

Note: If a degree program has not been approved by the Board of Governors, its approval for alternative, online, or distance delivery is conditioned upon BOG program approval. (400.1.1[R], page 3)

5.   Estimate the total number of students that would be enrolled in the program during the <u>first</u> year of operation: *Full-Time* 20 *Part-Time* 20

Estimate the total number of students that would be enrolled in the program during the <u>fourth</u> year of operation: *Full-Time* __50__ *Part-Time* __50__

6.   Will the proposed program require development of any new courses: Yes__X_No____

If yes, briefly explain.

Although there is a substantial inventory of master's courses in both colleges which cover various aspects of data and business analytics, we plan to develop a set of courses specifically targeted for Big Data analytics while reconfiguring some of the existing courses. This program, more so than other master's programs, requires a set of courses that integrate the fundamentals, relevant methods using current tools, and business applications. For example, instead of having a graduate stand-alone statistics course, both fundamental and advanced statistical methods and tools will be covered in multiple courses such as data and text mining, web analytics and optimization, consumer analytics, and visualization courses.

7.   Will any of the resources listed below be required to deliver this program? (If yes, please briefly explain in the space below each item, and state the source of the new funding and   resources required.)

a.   New Faculty: Yes_____ No ___X____

b.   Additional Library Resources: Yes _____ No ___X____

      c.   **Additional Facilities and Equipment:**   **Yes _____ No __X____**

      d.   **Additional Other Program Support:**   **Yes _____ No __X___**
              (for example, additional administrative staff, new
              Master's program graduate student assistantships, etc.)

8.   **For graduate programs only:**

      a.   **Does the campus plan to seek approval for a tuition**
             differential or program specific fee for this new
             graduate program?   **Yes __X__ No _____**

      b.   **If yes, state the amount of tuition differential or fee being considered, and give a brief justification.**

             The BCOB and the CCI propose a tuition differential for all students enrolled in the PMS in DSBA of $5,000 per year. Students in the DSBA PSM, like students in all of the Belk College of Business master's programs, will benefit from student support and advising services and the availability of assistantships and scholarships funded through the tuition differential. Tuition for the M.S. in Mathematical Finance, a joint program currently being offered by the Belk College of Business and the Department of Mathematics in the College of Liberal Arts and Sciences, includes a $5,000 per year tuition differential and serves as a model for the interdisciplinary PSM in DSBA program between the BCOB and CCI. A $5,000 per year tuition differential would bring the PSM in DSBA program in line with current charges for current Belk College master's level degree, graduate certificate and interdisciplinary master's level programs. Both Health informatics and Bioinformatics, the other two PSM programs at UNC Charlotte offered by CCI, also charge tuition differentials to support the administration of the internships, career counseling, industry engagement and other special features of PSM programs.

9.   **For doctoral programs only:**

      a.   **Describe the research and scholarly infrastructure in place (including faculty) to support the proposed program.**

      b.   **Describe the method of financing the proposed new program (including extramural research funding and other sources) and indicate the extent to which additional state funding may be required.**

      c.   **State the number, amount, and source of proposed graduate student stipends and related tuition benefits that will be required to initiate the program.**

10.   **List the names, titles, e-mail addresses and telephone numbers of the person(s) responsible for planning the proposed program.**

             Srinivas Akella, Associate Professor, Department of Computer Science, College of Computing and Informatics, sakella@uncc.edu, (704) 687-857

a. Describe the research and scholarly infrastructure in place (including faculty) to support the proposed program.

b. Describe the method of financing the proposed new program (including extramural research funding and other sources) and indicate the extent to which additional state funding may be required.

c. State the number, amount, and source of proposed graduate student stipends and related tuition benefits that will be required to initiate the program.

10. List the names, titles, e-mail addresses and telephone numbers of the person(s) responsible for planning the proposed program.

Srinivas Akella, Associate Professor, Department of Computer Science, College of Computing and Informatics, sakella@uncc.edu, (704) 687-857

Christie Amato, Associate Dean for Graduate Programs, Belk College of Business, C.Amato@uncc.edu, 704-687-7712

William Ribarsky, Chair, Department of Computer Science, College of Computing and Informatics, ribarsky@uncc.edu, 704-687-8559

Cem Saydam, Chair, Business Information Systems and Operations Management Department, Belk College of Business, saydam@uncc.edu, 704-687-7616

This request for authorization to plan a new program has been reviewed and approved by the appropriate campus committees and authorities.

Chancellor ___*Philip Dubois*___   Date __2/19/13__