



UNC CHARLOTTE

Office of the Chancellor

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July 8, 2010

Dr. Alan Mabe
Senior Vice President for Academic Affairs
General Administration
University of North Carolina
Post Office Box 2688
Chapel Hill, North Carolina 27515-2688

Dear Dr. Mabe:

Enclosed is UNC Charlotte's request for authorization to establish a Professional Science Master's in Health Informatics.

The proposed Health Informatics program is an interdisciplinary program at the intersection of the disciplines of Informatics and Health Services Administration. The program will build on existing faculty strengths in the College of Computing and Informatics and the College of Health and Human Services. Student demand for the existing graduate certificate in Health Information Technology, as well as labor market projections for health informatics professionals, provides evidence of the need for the program.

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 regarding this request.

Cordially,

Philip L. Dubois
Chancellor

Enclosure

cc: Provost Joan F. Lorden
Dean Tom Reynolds
Dean Yi Deng
Dean Karen Schmaling





Request for Authorization to Establish

Master of Science
Health Informatics

July 2010

Graduate School
College of Computing and Informatics
College of Health and Human Services

**THE UNIVERSITY OF NORTH CAROLINA
REQUEST FOR AUTHORIZATION TO ESTABLISH A NEW DEGREE PROGRAM**

INSTRUCTIONS: Please submit five copies of the proposal to the Senior Vice President for Academic Affairs, UNC Office of the President. Each proposal should include a 2-3 page executive summary. The signature of the Chancellor is required.

Date: 7/6/10

Constituent Institution: The University of North Carolina at Charlotte

CIP Discipline Specialty Title: Health Informatics

CIP Discipline Specialty Number: 51.2706 Level: B M X 1st Prof D

Exact Title of the Proposed Degree: Professional Science Master's in Health Informatics

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 No X

a) Is it at a more advanced level than those previously authorized? Yes No X

b) Is the proposed program in a new discipline division? Yes No X

Proposed date to establish degree program (allow at least 3-6 months for proposal review):

month January year 2011

Do you plan to offer the proposed program away from campus *during the first year of operation*?

Yes No X

If so, complete the form to be used to request establishment of a distance education program and submit it along with this request.

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EXECUTIVE SUMMARY

The program in Health Informatics leading to the Professional Science Masters degree (PSM) is an interdisciplinary program at the intersection of the disciplines of Informatics and Health Services Administration.

The PSM in Health Informatics is designed to train the innovators who will bring 21st Century informatics to bear on the US health care system. Health Informatics allows comprehensive management of medical information and its secure exchange between health care consumers and providers.

Broad use of Health Informatics will:

- Facilitate health care quality;
- Prevent medical errors;
- Reduce health care costs;
- Increase administrative efficiencies;
- Decrease paperwork; and
- Expand access to affordable care.

Interoperable Health Informatics will improve individual patient care, but it also will bring many public health benefits including:

- Early detection of infectious disease outbreaks around the country;
- Improved tracking of chronic disease management; and
- Evaluation of health care based on value, benchmarking.

It is expected that students entering the PSM in Health Informatics will have completed an undergraduate major in a life science, health science, or informatics discipline, with at least one object-oriented programming course and at least one database course. The training program will be structured to provide students with the skills and knowledge to evaluate, modify, and deploy medical information systems and to educate others in their use.

The program capitalizes on existing faculty strengths and existing courses in the College of Computing and Informatics and the College of Health and Human Services. The newly implemented graduate certificate in Health Information Technology has revealed strong student demand in this interdisciplinary field. The president of the American Medical Informatics Association estimates that at least 200,000 new health informatics professionals will be needed to support the Administration's health records computerization initiative, and it is expected that approximately 6,000 are needed in North Carolina.

No other master's programs in health informatics are found in the state.

I. DESCRIPTION OF THE PROGRAM

A. Describe the proposed degree program (i.e., its nature, scope, and intended audience).

The program in Health Informatics leading to the Professional Science Masters degree (PSM) is an interdisciplinary program at the intersection of the disciplines of Informatics and Health Services Administration. The PSM is an innovative concept championed by the Alfred P. Sloan Foundation that has received widespread support from a number of organizations including the Business Roundtable. Since 2006, the Council of Graduate Schools assumed primary responsibility for supporting and expanding the Sloan Professional Science Master's (PSM) Initiative, with the goal of making it a regular feature of US graduate education. Currently, there are more than 170 PSM programs in more than 85 US universities with strong graduate programs in the science, mathematics, and technology. All are developed in concert with industry and are designed to dovetail into present and future professional career opportunities.

The PSM in Health Informatics is designed to train the innovators who will bring 21st Century informatics to bear on the US health care system. Health Informatics allows comprehensive management of medical information and its secure exchange between health care consumers and providers. As the HHS.gov website notes:

Broad use of Health Informatics will:

- Facilitate health care quality;
- Prevent medical errors;
- Reduce health care costs;
- Increase administrative efficiencies;
- Decrease paperwork; and
- Expand access to affordable care.

Interoperable Health Informatics will improve individual patient care, but it also will bring many public health benefits including:

- Early detection of infectious disease outbreaks around the country;
- Improved tracking of chronic disease management; and
- Evaluation of health care based on value, benchmarking.

It is expected that students entering the PSM in Health Informatics will have completed an undergraduate major in a life science, health science, or informatics discipline, with at least one object-oriented programming course and at least one database course. This specific requirement can be met by ITCS 3112 and ITCS 3160 at UNC Charlotte, or equivalent courses at other institutions (such as CPCC's CSC 120 and CSC 130), or work experience. The training program will be structured to provide students with the skills and knowledge to evaluate, modify, and deploy medical information systems and to educate others in their use.

B. List the educational objectives of the program.

The proposed graduate program in Health Informatics has the following educational objectives:

- to provide students with a rigorous foundation in information technology, including network-based application development, applied databases, project management, information security and management, and system design and integration, and their application to health care data;
 - to provide skills in health care data architecture, modeling, and management; data search, manipulation, mining, and security; health care decision analysis and support; and data summarization, including biostatistics, evaluation, and presentation;
 - to provide an understanding of the US health care system, and the operational, process, and service characteristics of different health care environments (hospital, outpatient, and physician office);
 - to train students in health care ethics and in regulatory and privacy standards; and
 - to provide training in the management and communications skills needed for the health care environment.
- C. Describe the relationship of the program to other programs currently offered at the proposing institution, including the common use of: (1) courses, (2) faculty, (3) facilities, and (4) other resources.

1. Courses

The subject matter of the degree lies at the intersection of health and computing. A majority of courses required for the PSM degree will be drawn from existing offerings in the College of Health and Human Services (CHHS) and in the College of Computing and Informatics (CCI). A number of new courses that address topics not covered in current offerings will be developed as part of the degree program, across the participating colleges and departments.

2. Faculty

The PSM faculty will comprise the Graduate Faculty members, whose expertise is relevant to the PSM, from the College of Health and Human Services and the College of Computing and Informatics. Regarded industry experts with proper credentials will also be recruited to serve as Adjunct Faculty. In addition, any member of the Graduate Faculty at the university with proper credentials and expertise and interest to teach and/or serve on committees of the PSM may apply to become an adjunct faculty member of the PSM faculty. The PSM faculty will be appointed by a PSM Program Director in consultation with a Joint CHHS/CCI Program Committee. The appointments will be for five-year terms with re-appointments made according to guidelines established by the PSM Program Director, approved by the Deans of the Graduate School, CHHS, and CCI.

3. Facilities

The PSM will employ existing facilities from the College of Health and Human Services and the College of Computing and Informatics.

4. Other Resources

N/A

II. JUSTIFICATION FOR THE PROGRAM—NARRATIVE STATEMENT

D. Describe the proposed program as it relates to:

1. the institutional mission and strategic plan

The proposed degree program is consistent with the mission of the University of North Carolina at Charlotte. The UNC Charlotte mission states that we are "...North Carolina's urban research university. It leverages its location in the state's largest city to offer internationally competitive programs of research..., exemplary graduate and professional programs, and a focused set of community engagement initiatives." The proposed program will utilize Charlotte's location and extensive opportunities in health informatics to offer rich learning experiences (internships) for the students, which will build upon and strengthen the university's ties with the community.

UNC Charlotte's Mission Statement reflects a broad institutional commitment to focus interdisciplinary resources to address a number of areas of concern to the Charlotte region. Among these areas are emphases on the application of science and technology to health care problems. The PSM in Health Informatics addresses many of the institution's goals, including Goal 1) a mandate to "maintain a broad portfolio of masters' ... programs," Goal 2) "to increase both faculty and student research that will address fundamental and regional problems," Goal 3) "to provide a variety of services that respond to the ongoing and emerging regional needs," and 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."

As the only research university in the Charlotte region, UNC Charlotte has sought to address the major educational, economic, social, and cultural needs of the region. The proposed Professional Science Master's Degree in Health Informatics is the most recent example of our institution's response to the needs of our region. Charlotte and Mecklenburg County represent the largest population center in the State and our citizens are served by two major health care systems. Unlike the Raleigh-Durham-Chapel Hill area, Charlotte lacks an academic medical center that might otherwise serve the needs of these large health care systems. By combining the expertise of two strong Colleges (Health and Human Services, and Computing and Informatics), UNC Charlotte is able to provide the training for graduates seeking employment in this important sector of health care.

The 2010-2015 strategic plan of the university is being formulated while this Request is being written. Among the current university goals (2005-10), the establishment of this program is consistent with goal #1, to improve educational opportunities that respond to the intellectual and professional needs of the region," including maintaining a broad portfolio of master's programs, increasing the enrollment, increase offerings that include innovative uses of information technology. The program also is consistent with goal #3, to provide a variety of services that respond to the ongoing and emerging regional needs. Through our collaborative relationships with health care institutions, it is clear that they want and need skilled health informatics professionals. These needs are further underscored by their growing level of activity to implement high quality electronic medical records and health services databases in order to improve the quality of care, and conduct analysis of national guidelines through benchmarking.

2. student demand

The existing Health Information Technology (HIT) graduate certificate program (hit.uncc.edu) is a collaborative effort between the colleges of Health and Human Services and of Computing and Informatics. The 15 credit hour HIT certificate was established in Spring 2009, to admit students beginning in Fall 2009. Certificate design did not target specific concentrations, so it currently provides a more general HIT credential. The level of interest in the program has been quite high, given only limited publicity, with well over 100 serious inquiries from prospective students in the past eight months. This has included people with Health and Computing backgrounds interested in cross-training, as well as people with other backgrounds interested in transitioning. The program admitted an initial cohort of 8 students for Fall 2009, a further 16 students for Spring 2010, and the first students graduated in Spring 2010.

3. societal need (For graduate, first professional, and baccalaureate professional programs, cite manpower needs in North Carolina and elsewhere.)

There is a growing demand for professionals with these skills. The president of the American Medical Informatics Association estimates that at least 200,000 new health informatics professionals will be needed to support the Administration's health records computerization initiative. Given the population of North Carolina, we can extrapolate that at least 6,000 such professionals will be needed in the State. There are few such programs to train these personnel.

The Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM), an independent accrediting body, at present provides accreditation for undergraduate Health Informatics and Health Information Management programs at accredited higher education institutions in the United States. Currently, graduate programs may only be designated as approved by this organization. However, CAHIIM will also provide accreditation for graduate level Health Informatics and Health Information Management programs with applications available for the program review process from April 5, 2010. CAHIIM presently lists only six approved programs at the master's level in the United States (Claremont Graduate University, College of St. Scholastica, Oregon Health Sciences Center, and the Universities of Illinois at Chicago, Pittsburgh, and Tennessee Health Sciences Center).

Within the family of PSMs, only two cover this field (Middle Tennessee State University - Masters of Science in Professional Science with a Health Informatics Concentration and the University of Central Florida - Masters of Science in Professional Science – Health Care Informatics) and none focuses on it exclusively. To ensure that our training program meets the needs of employers, we have applied for a grant from the Sloan Foundation administered through UNC-GA to convene an advisory group of leaders from the health care field as well as academia. The PSM in Health Informatics will serve as an important qualification for individuals who will seek employment in North Carolina's health care sector. This expertise is especially critical in the Charlotte area, which has major health care systems serving millions of North Carolinians. The program also will provide an excellent foundation for advanced graduate study in the life sciences, bioinformatics, medicine, and other health disciplines.

4. impact on existing undergraduate and/or graduate academic programs of your institution. (e.g., Will the proposed program strengthen other programs? Will it stretch existing resources? How many of your programs at this level currently fail to meet Board of Governors' productivity criteria? Is there a danger of proliferation of low-productivity degree programs at the institution?)

The PSM in Health Informatics will complement graduate and undergraduate programs in information technology (College of Computing and Informatics) and health administration (MHA), advanced practice nursing (MSN) and health services research (PhD) (College of Health and Human Services). Whenever possible, we will utilize existing courses in these areas to provide a deeper understanding of the relevant subject areas. For example, students will take many of the core courses now offered for the MS in Information Technology (CCI) and the Master of Health Administration (HHS). A selection of electives will allow students to explore specific areas of interest and gain insight in areas that will facilitate certification. An interdisciplinary faculty will provide a unique opportunity for students to build on undergraduate degrees in a variety of areas to prepare for employment in North Carolina's health care sector.

Because the proposed degree is a Professional Science Masters, we believe it will not stretch existing resources but instead will more likely help attract external support from both private and public sectors. Additionally, there is a concerted effort nationally in the area of health care innovation to computerize health care records. This task, which is conservatively estimated to take five years, is just the beginning of a revolution in medicine. Not only will these changes reduce costs and medical errors, they are absolutely essential for a new era of personalized genomic medicine, and for effective evidence-based medical practice. To support these efforts, the "American Recovery and Reinvestment Act (ARRA) of 2009, as approved by the Senate-House Conference Committee, calls for \$19B in expenditures to help with the computerization of health records by 2014. In fact, we have recently submitted a funding proposal for an ARRA grant to support expansion of our Health Information Technology Certificate program. The target outcome for this proposal is to train, educate, and graduate 300-350 professionals in Health Informatics during the 39 month duration of the grant. Although this opportunity is in support of a graduate certificate it will help us expand our base of opportunity for the PSM in Health Informatics.

UNC Charlotte has thirteen master's programs, out of 63, that are identified as not meeting the productivity criteria established by the Board of Governors. However, most of these meet local and regional needs (for example, master's degrees in Math Education and English Education are part of UNC Charlotte's efforts to increase the graduation of high quality K-12 teachers, and master's programs in Engineering and Applied Physics are effective complements to other successful programs). Two of the programs are still relatively new and one (the MA in Liberal Studies) had stopped admitting students for a year while it underwent an administrative reorganization. That program now has a new director and is currently admitting new students. Therefore, we feel that the PSM in Health Informatics will not lead to a proliferation of low-productivity programs.

- E. Discuss potential program duplication and program competitiveness.
1. Identify similar programs offered elsewhere in North Carolina. Indicate the location and distance from the proposing institution. Include a) public and b) private institutions of higher education.
 1. Public Institutions: No UNC institution offers a Masters degree in Health Informatics; although East Carolina University does offer a Graduate Certificate in Health Informatics.
 2. Private Institutions: Duke University recently announced the creation of a Center for Health Informatics that will include the schools of medicine, nursing and business. The first degree program approved to be offered through this center is the Master's of Management in Clinical Informatics. The program aims to prepare students for IT management careers in health care, medical research, government, and counseling.
 2. Indicate how the proposed new degree program differs from other programs like it in the University. If the program duplicates other UNC programs, explain a) why is it necessary or justified and b) why demand (if limited) might not be met through a collaborative arrangement (perhaps using distance education) with another UNC institution. If the program is a first professional or doctoral degree, compare it with other similar programs in public and private universities in North Carolina, in the region, and in the nation.

As noted in Section II.B.1 above, there are no equivalent master's level programs in Health Informatics in the State of North Carolina or in the southeast region of the USA. Although the proposed program sits comfortably within the expanding pedagogy of the College of Computing and Informatics and the College of Health and Human Services, its interdisciplinary nature, bridging health and informatics, transcends the scope of any purely health or computer based curriculum. Equally, placing the program within the Graduate School ensures the continued interdisciplinary nature of the degree and distinguishes the program from any health informatics curriculum that will inevitably come forward from other public and private universities in North Carolina.

Nationally, a comprehensive search for programs equivalent to the proposed PSM in Health Informatics identified 34 programs. For example, the University of Wisconsin at Milwaukee offers an MS in Health Care Informatics. The curriculum for this program consists of 35 credit hours and covers areas such as systems analysis and design, database and project management, decision support, network design, and health care applications and procurement. There is a thesis or project requirement as the capstone course. Northeastern University has an MS in Health Informatics that is a non-thesis program consisting of 36 graduate credit hours. The University of California Davis offers a Masters in Health Informatics which consists of 43 credit hours with a thesis requirement. None of these programs are identified as a Professional Science Masters degree and, although interdisciplinary, are housed either in the College of Health Sciences or College of Computer and Information Science. The University of Illinois at Chicago, the University of Tennessee, and Northwestern University offer masters degrees in health informatics or a related area but these are on-line programs only.

There are two PSM programs; Middle Tennessee State University, Master of Science in Professional Science with a Health Informatics Concentration and the University of Central Florida, Master of Science in Professional Science – Health Care Informatics). Both graduate degrees require 36 hours of course work. The PSM program at Middle Tennessee State University consists of 15 hours of core courses and 21 hours of health informatics (HIM) concentration courses which includes one 3-hour elective course. The PSM program at the University of Central Florida is an online program that includes a practicum, an internship, and an optional additional 6-hour thesis. The program at Middle Tennessee State University is housed in the College of Graduate Studies and the program at the University of Central Florida is housed in the College of Health and Public Affairs, Department of Health Management and Informatics. The University of Central Florida offers a single curriculum only. Middle Tennessee State University offers the HIM concentration as one of three concentrations in their MS-PSM program (the other two concentrations are biostatistics and biotechnology).

CAHIIM presently lists only six approved programs at the master's level in the United States (Claremont Graduate University, College of St. Scholastica, Oregon Health Sciences Center, and the Universities of Illinois at Chicago, Pittsburgh, and Tennessee Health Sciences Center). These courses range from 33 - 42 credits and are offered both in a traditional setting and as on-line courses.

The Master of Science in Health Information Management at Claremont Graduate University is housed in the School of Information Systems and Technology. Forty-four units are required composed of: ten 4-unit classes (six core courses and four elective courses) and one 4-unit clinical immersion course which comprises an internship or practicum project. The Master of Science in Health Information Management at the College of St. Scholastica is housed in the School of Health Sciences. This distance learning or traditional course requires 40 credits: 11 required courses and three courses from one of three concentrations - Electronic Health Record Strategies, Healthcare Management, or Revenue Management and Compliance. The Master's of Science in Health Informatics at the University of Illinois at Chicago is housed in the College of Public Health. This institution offers a 45 credit hour non-research track and an additional optional research track. The core courses comprise 32 hours, electives are offered, one extra course is required for the course-only track and the research track requires additional core courses. The MS in Health and Rehabilitation Sciences with a concentration in Health Information Systems at the University of Pittsburgh is housed in the School of Health and Rehabilitation Sciences, Department of Health Information Management. The curriculum comprises 29-30 credits of health informatics and foundations courses, 6 credits of health management, 6 credits thesis option, and 6 credits non-thesis option – independent study/electives for a total of 41-42 credits. The Master of Health Informatics and Information Management is an on-line degree at the University of Tennessee housed in the Health Science Center and is a 33-hour program which includes a thesis or non-thesis research project. Oregon Health and Science University offers a Master of Biomedical Informatics (MBI) and MS in Medical Informatics housed in the Department of Medical Informatics and Clinical Epidemiology.

- F. Enrollment (baccalaureate programs should include only upper division majors, juniors and seniors).

Headcount enrollment

Show a five-year history of enrollments and degrees awarded in similar programs offered at other UNC institutions (using the format below for each institution with a similar program); indicate which of these institutions you consulted regarding their experience with student demand and (in the case of professional programs) job placement. Indicate how their experiences influenced your enrollment projections.

There is no history of UNC institutions with a similar program.

Use the format in the chart below to project your enrollment in the proposed program for four years and explain the basis for the projections:

It is reasonable to expect a steady state enrollment in the program of as many as 50 students, most of whom will be full-time. The following table assumes that full-time students will require 4-5 semesters or 2-2.5 years to complete the degree and part-time students will require 3-3.5 years to finish the program.

	Year 1 (2011-12)	Year 2 (2012-13)	Year 3 (2013-14)	Year 4 (2014-15)
Full-time	8	17	27	38
Part-time	2	5	8	12
TOTALS	10	22	35	50

Please indicate the anticipated steady-state headcount enrollment after four years:

Full-time 38 Part-time 12 Total 50

SCH production (upper division program majors, juniors and seniors *only*, for baccalaureate programs).

Use the format in the chart below to project the SCH production for four years. Explain how SCH projections were derived from enrollment projections (see UNC website for a list of the disciplines comprising each of the four categories).

The tables below assume that a full-time student enrolls for 9 graduate credit hours each semester and a part-time student enrolls in 6 graduate credit hours. Some credit hours are also associated with the Health Information Technology graduate certificate and thus not all will require enrollment increase funding.

Year 1	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			
Category II			
Category III		168* (0 is enrollment increase)	
Category IV			

Year 2	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			
Category II			
Category III		366* (150 is enrollment increase)	
Category IV			

Year 3	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			
Category II			
Category III		564* (150 is enrollment increase)	
Category IV			

Year 4	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			
Category II			
Category III		828* (150 is enrollment increase)	
Category IV			

* Includes credit hours associated with the Health Informatics graduate certificate.

III. PROGRAM REQUIREMENTS AND CURRICULUM

A. Program Planning.

1. List the names of institutions with similar offerings regarded as high quality programs by the developers of the proposed program.

Section II.B.2 provides an overview of the background research on institutions with similar programs nationally.

PSM programs:

1. Middle Tennessee State University - Master of Science in Professional Science with a Health Informatics Concentration.
2. The University of Central Florida - Master of Science in Professional Science – Health Care Informatics

CAHIIM approved programs:

1. Claremont Graduate University, Claremont, CA - Master of Science in Health Information Management
2. College of St. Scholastica, Duluth, MN - Master of Science in Health Information Management
3. Oregon Health & Science University - MBI and MS Medical Informatics
4. University of Illinois at Chicago - Master of Science in Health Informatics
5. University of Pittsburgh - MS in Health and Rehabilitation Sciences with a concentration in Health Information Systems
6. University of Tennessee - Master of Health Informatics and Information Management

2. List other institutions visited or consulted in developing this proposal. Also discuss or append any consultants' reports, committee findings, and simulations (cost, enrollment shift, induced course load matrix, etc.) generated in planning the proposed program.

The Program Directors or Department Chairs at each of the six CAHIIM-approved and two PSM programs were contacted in December 2009 and January 2010. Three institutions replied and two offered to provide informal consulting services; Kathleen LaTour, MA, RHIA, FAHIMA, Assistant Professor and Chair of the Department of Healthcare Informatics and Information Management, College of St. Scholastica; and Dr. William Hersh, M.D., FACP, FACMI, Professor and Chair of the Department of Medical Informatics and Clinical Epidemiology, Oregon Health and Science University. Both have published scholarly works on the development of health informatics/health information management programs. These consultations are ongoing.

Dr. LaTour has been particularly helpful in advising us; the undergraduate Health Information Management program at the College of St. Scholastica was the first bachelor's degree to be offered in this field and is CAHIIM-accredited and the Master's level program in Health Information Management was the first graduate level program in the United States to be CAHIIM/AHIMA (American Health Information Management Association) approved.

Dr. LaTour confirmed that the CAHIIM approval, with the prospective accreditation, is the only potential accreditation body for Health Information Management/Informatics programs that she is aware of. She also agreed that the utilization of the CAHIIM standards and the AHIMA competencies as a basis for the curriculum development for the proposed program at UNC Charlotte is the most appropriate method of analysis. She advised on the CAHIIM approval and the curriculum development process.

B. Admission. List the following:

1. Admissions requirements for proposed program (indicate minimum requirements and general requirements).

The minimum admission requirements for the program are:

- a. An earned undergraduate degree in the life sciences or an informatics discipline or a closely related field;
- b. An undergraduate GPA of 3.00 or better;
- c. Acceptable scores on the verbal, quantitative, and analytical sections of the GRE;
- d. Positive letters of recommendation;
- e. A statement of purpose outlining the goals for pursuing a graduate education
- f. A minimum TOEFL score of 220 (computer-based), 557 (paper-based), or 83 (internet based) or a minimum IELTS band score of 6.5 is required from any applicant whose native language is not English; and
- g. Other credentials as required by the Graduate School.

2. Documents to be submitted for admission (listing or sample).

- a. Official transcripts from all colleges and universities attended.
- b. Official GRE scores.
- c. Official TOEFL or IELTS scores.
- d. The UNC Charlotte application for graduate admission form.
- e. Three letters of recommendation.

C. Degree requirements. List the following:

1. Total hours required. Major. Minor.

The degree program requires 39-48 hours, including 9-18 hours of foundation courses, 18 hours of core courses, 9 hours of concentration courses, and 3 hours for an internship. A full curriculum plan is shown in Figure 1. Referring to this figure, it is anticipated that most students will have an educational or experiential background in health care or in informatics. Students with an adequate informatics background will take the “Foundations in Health” foundation courses, but not the “Foundations in Informatics” courses. Similarly, students with an adequate health care background will take the “Foundations in Informatics” courses only. In both cases, only 9 hours of Foundations courses are required. The adequacy of a student’s background is determined by the program director. Students who are determined by the program director to lack an adequate background in informatics as well as health will be required to take both Foundation sequences (Foundation General) for a total of 18 hours.

Foundation 9 hours	<p align="center"><u>Foundation in Health</u></p> <p align="center">Health Vocabularies and Classification Systems [TBD-HCIT 5370]</p> <p align="center">Introduction to US Health Care System [HADM 6100]</p> <p align="center">Quality & Outcomes Management in Health Care [HADM 6134]</p>	<p align="center"><u>Foundation in Informatics</u></p> <p align="center">Computer Vocabularies & Programming Systems [TBD-HCIT 5375]</p> <p align="center">Introduction to Programming for HI [TBD-HCIT 5376]</p> <p align="center">Database Systems for HI [ITIS 5160 ITCS 6160]</p>	<p align="center"><u>Foundation General</u></p> <p align="center">Foundation in Health Courses + Foundation in Informatics Courses</p> <p align="center">(This track requires 9 additional credit hours)</p>	
Core 18 hours	<p align="center">Introduction to Health Informatics [TBD-HCIT 6380]</p> <p align="center">Applied Health informatics [ITCS 6228 – Medical Informatics to be revised]</p> <p align="center">Computer Security, Privacy and Legal Issues [ITIS 6201]</p> <p align="center">Information Technology Project Management [ITIS 6342]</p> <p align="center">Healthcare Communication and Leadership [TBD-HCIT 6385]</p> <p align="center">Public Health Data Analysis [HLTH 6203]</p>			
Concentration 9 hours (Select 3 courses)	<p align="center"><u>Programmer & Software Engineer</u></p> <p align="center">Advanced Programming for HI [TBD-HCIT 6390]</p> <p align="center">Architecting HI Systems [TBD-HCIT 6391]</p> <p align="center">Software System Design and Implementation [ITCS/ITIS 6112]</p> <p align="center">Enterprise Health Information Systems [TBD-HCIT 6392]</p> <p align="center">Current Issues in Health Informatics [TBD-HCIT 6070]</p>	<p align="center"><u>HIM / Exchange Specialist</u></p> <p align="center">Enterprise Health Information Systems [TBD-HCIT 6392]</p> <p align="center">Advanced Health Data Integration w/Lab [TBD-HCIT 6393]</p> <p align="center">Principles of Computer Networks and Databases [TBD-ITIS 6199]</p> <p align="center">Quality and Outcomes Management in Health Care [HADM 6134]</p> <p align="center">Current Issues in Health Informatics [TBD-HCIT 6070]</p>	<p align="center"><u>Health Information Privacy and Security Specialist</u></p> <p align="center">Information Infrastructure Protection [ITIS 6230]</p> <p align="center">Vulnerability Assessment and System Assurance [ITIS 5220]</p> <p align="center">Access Control & Security Architecture [ITIS 6210]</p> <p align="center">Network Security [ITIS 6167]</p> <p align="center">Computer Forensics [ITIS 5250]</p> <p align="center">Applied Cryptography [ITIS 6240]</p> <p align="center">Quality and Outcomes Management in Health Care [HADM 6134]</p> <p align="center">Current Issues in Health Informatics [TBD-HCIT 6070]</p>	<p align="center"><u>Analyst</u></p> <p align="center">Community Epidemiology [HLTH 6202]</p> <p align="center">Analytic Epidemiology [HLTH 6260]</p> <p align="center">Decision Analysis in Health Care [HADM 6108]</p> <p align="center">Knowledge Discovery in Databases [ITIS/ITCS 6162]</p> <p align="center">Advanced Health Data Integration w/Lab [TBD-HCIT 6393]</p> <p align="center">Quality & Outcomes Management in Health Care [HADM 6134]</p> <p align="center">Data Warehousing [ITIS/ITCS 6163]</p> <p align="center">Current Issues in Health Informatics [TBD-HCIT 6070]</p>
Practicum 3 hours	<p align="center"><u>Capstone Project / Internship</u> [ITIS 6198, ITCS 6490, HADM 6166, or equivalent courses]</p>			

All students will take the required six Core courses (18 hours). These will provide a strong general background in health informatics, security, management, leadership, and statistics, and provide the basis for more advanced Concentration courses.

There are four possible Concentration tracks. These are:

1. Programmer and Software Engineer
2. Health Information Privacy and Security Specialist
3. HIM/Exchange Specialist
4. Analyst

These tracks correspond to four of the six Health Informatics roles identified by the National Coordinator for Health Information Technology (U.S. Department of Health and Human Services) for University-level training. Students will select a track with guidance from the Program Coordinator and must successfully complete three courses (3 hours each) within that track. Some courses are present in more than one track, and it is anticipated that more courses will be added to the various tracks as certifications grow in the field of health informatics. A student may switch tracks, but is still required to complete 9 hours in that track.

In line with the practice-based nature of this program, all students must complete an approved Capstone Project/Internship in order to graduate. The specific requirements are listed in existing course descriptions for IT IS 6198 and HADM 6166.

2. Proportion of courses open only to graduate students to be required in program (graduate programs only).

At UNC Charlotte, courses having 5000 numbers are open to graduate students. Courses with 6000, 7000, and 8000 numbers are open to graduate students only. A minimum of 24 credit hours presented towards a PSM in Health Informatics degree must be numbered 6000 or higher.

3. Grades required.

A student in the PSM in the Health Informatics Program must maintain a minimum GPA of 3.0 for continued enrollment in the program. Accumulation of three *C* grades will result in the suspension of the student's enrollment in the program. Accumulation of one *U* grade will result in the suspension of the student's enrollment in the program.

4. Amount of transfer credit accepted.

Up to six hours of approved coursework may be transferred from regionally accredited master's and doctoral programs. Only courses in which the student earned a grade of *B* or better may be transferred.

5. Other requirements (e.g. residence, comprehensive exams, thesis, dissertation, clinical or field experience, "second major," etc.).

No additional requirements.

6. Language and/or research requirements.

There is no language requirement.

7. Any time limits for completion.

Time limits are described in the UNC Charlotte Graduate Catalog: "University policy requires that no course listed on a master's student's candidacy form be older than six years at the time of graduation. This policy is in place because of the University's interest in a degree being current when it is awarded. Courses that exceed this time limit must be revalidated or retaken, whichever the graduate program decides necessary, if they are to count in a degree program.

- G. List existing courses by title and number and indicate (*) those that are required. Include an explanation of numbering system. List (under a heading marked "new") and describe new courses proposed

Required courses: * = core/practicum course, *H = Foundation in Health, *I = Foundation in Informatics

(*H) HADM 6100 Introduction to the US Healthcare System. (3) Overview of health care delivery in the United States including organizational structures, financing mechanisms and delivery systems, with particular attention to program formation.

HADM 6108. Decision Analysis in Health Care. (3) The study of selected quantitative management tools useful in the analysis of managerial decisions. Includes a review of basic descriptive and inferential statistics, applied probability distributions, forecasting methods, statistical process control, queuing, transportation and assignment modeling, and linear programming. The emphasis is on applying quantitative decision making methods to the operational problems facing health care organizations. Familiarity with computers and computer software will be important for success in this course.

(*H) HADM 6134. Quality and Outcomes Management in Health Care. (3) Examination of the concepts and practices of quality management, performance improvement, and assessment of outcomes in health care delivery settings. Designed to provide an in-depth understanding of basic concepts and frameworks and of their applicability and relevance in specific situations. HADM 6145. Organization Behavior in Health Care. (3) Introduction to organizational theory with applications to health care systems, including organizational design and inter-organizational networks/alliances. Examination of communication and leadership skills development, including conflict, labor and dispute management. (Fall or Spring) (Evenings or Weekends)

(*H) HADM 6400. Internship. (3) Prerequisite: Completed HADM 6100 and 15 additional hours of core course requirements. The purpose of the health administration internship is to offer administrative experience in a healthcare setting for students. The initial assumption is made that students participating in the internship experience have had

limited hands-on exposure to healthcare administration. Graded on a Pass/No Credit basis. (Fall, Spring, Summer)

HLTH 6260. Analytic Epidemiology. (3) Crosslisted with HSRD 8003. Prerequisite: HLTH 6202 (Community Epidemiology) and permission of instructor. Principles and methods of studying advanced epidemiology, with emphasis on the analytic approach. Includes: advanced techniques in the establishment of disease causation in groups and communities. Such topics as risk assessment, environmental exposures, stratification and adjustment, and multivariate analysis in epidemiology are covered. Emphasis is also placed on quality assurance and control and communicating results of epidemiological studies in professional publications and settings. (Fall)

HLTH 6202. Community Epidemiology. (3) Crosslisted as HADM 6104. Principles and methods of epidemiology including definitions and models of health, illness and disease; modes of transmission of clinically important infectious agents; risk factors and chronic diseases; and insights into existing studies and paradigms of health promotion and disease prevention. (Fall)

(*) HLTH 6203. Public Health Data Analysis. (3) A foundations graduate course designed to develop understanding and skill in data analysis and interpretation in research related to public health. Students will have opportunities to develop basic skills in data analysis, computer use, data interpretation, and the presentation/communication of results. (Spring)

ITCS/ITIS 6112. Software System Design and Implementation. (3) Introduction to the techniques involved in the planning and implementation of large software systems. Emphasis on human interface aspects of systems. Planning software projects; software design process; top-down design; modular and structured design; management of software projects; testing of software; software documentation; choosing a language for a software system.

(*I) ITCS 6160 Database Systems (3) Introduction to principles of database design, and survey of alternative database organizations and structures. Logical database organization; schemas; subschemas; data description languages; hierarchical, network, and relational databases; database management systems; normal forms.

ITCS/ITIS 6162. Knowledge Discovery in Databases. (3) Prerequisite: ITCS 6160 or permission of department. The entire knowledge discovery process is covered in this course. Topics include: setting up a problem, data preprocessing and warehousing, data mining in search for knowledge, knowledge evaluation, visualization and application in decision making. A broad range of systems, such as OLAP, LERS, DatalogicR+, C4.5, AQ15, Forty-Niner, CN2, QRAS, and discretization algorithms are covered. (Fall) (Evenings)

ITCS/ITIS 6163. Data Warehousing. (3) Prerequisite: ITCS 6160 or equivalent. Topics include: use of data in discovery of knowledge and decision making; the limitations of relational databases and SQL queries; the warehouse data models: multidimensional, star, snowflake; architecture of a data warehouse and the process of warehouse construction; data consolidation from various sources; optimization; techniques for data transformation and knowledge extraction; relations with enterprise modeling. (Spring) (Evenings)

(*) ITCS 6228 Applied Health Informatics (3) (To be Revised from Medical Informatics) Prerequisites: Graduate Standing. Advanced concepts and techniques in software development for Health Informatics. This course covers applied software development as part of Health Information Systems, including software engineering techniques for design and implementation, software systems integration, business process integration, and documentation. This course focuses on methods and techniques used in storage, communication, processing, analysis, integration, management, and distribution of healthcare-related information. The course focuses on review and description of IT systems used in the healthcare environment. The course also discusses industry standards; regulatory requirements; audit requirements; business and financial processes; and inventory of software, hardware, and information assets. (On demand) (Evenings)

(*) ITCS 6490. Industrial Internship. (0-6) Prerequisite: Completion of six hours of graduate coursework. Full or part-time academic year internship in computer science areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Each student's internship program must be approved by the supervising faculty, the academic advisor, and the graduate program director. A mid-term report and a final report to be evaluated by the supervising faculty are required. Grading will be on "Pass/No Credit" basis by the supervising faculty in consultation with off-campus supervisor at the internship organization. The credit hours may not be part of the minimum 30 credit hours for graduation. May be repeated for credit but no more than six hours may be applied to M.S. degree requirements. (Fall, Spring, Summer)

(*I) ITIS 5160. Applied Databases. (3) Prerequisites: full graduate standing, or permission of department. Identification of business database needs; requirements specification; relational database model; SQL; E-R modeling; database design, implementation, and verification; distributed databases; databases replication; object-oriented databases; data warehouses; OLAP; data mining; security of databases; vendor selection; DBMS product comparison; database project management; tools for database development, integration, and transaction control.

ITIS 5220. Vulnerability Assessment and System Assurance. (3) Prerequisites: permission of department. This course discusses methodologies, tools, and technologies that are important for vulnerability assessment and systems assurance. Topics covered include: ethical hacking techniques, vulnerability assessment, risk assessment/management, finding new exploits, discovering vulnerabilities, penetrating network perimeters, bypassing auditing systems, and assured administration of systems as well as evaluating systems assurance levels. Focus will be placed on 1) understanding current penetration techniques for networks, operating systems, services and applications; 2) investigating mitigation and defense strategies; and 3) studying legal and ethical considerations. The course is based on case studies with a strong lab component.

ITIS 5250. Computer Forensics. (3) Prerequisite: Enrollment in MS IT or permission of department. The identification, extraction, documentation, interpretation, and preservation of computer media for evidentiary purposes and/or root cause analysis. Topics include techniques for discovering digital evidence; responding to electronic incidents; tracking communications through networks; understanding electronic media, crypto-literacy, data hiding, hostile code, and Windows™ and UNIX™ system forensics; and the role of forensics in the digital environment.

ITIS 6167. Network Security. (3) Prerequisite: ITIS 6200 or equivalent. This course examines the issues related to network security. Topics include network security background and motivation, network centric threats, network authentication and identification, network security protocols, firewall, IDS, security in wireless environments, email security, instant message security, network application security, and network based storage security. There are heavy lab based components in this course.

(*) ITIS 6198. IT Internship Project. (3) Prerequisite: permission of department. Complete a team-based project that is originated from an IT organization and approved by the department.

(*) ITIS 6201 Computer Security, Privacy and Legal Issues. (3) Prerequisite: Permission of department. Topics include security concepts and mechanisms; security technologies; authentication mechanisms; mandatory and discretionary controls; basic cryptography and its applications; database security, intrusion detection and prevention; assurance requirement, assurance class, evaluation methods and assurance maintenance; anonymity and privacy issues for information systems. Students will gain hands-on experience through lab exercises and case studies.

ITIS 6210. Access Control and Security Architecture. (3) Prerequisite: ITIS 6200. This course discusses objectives, formal models, and mechanisms for access control; and access control on commercial off-the-shelf (COTS) systems. This course also examines the issues related to security architectures and technologies for authorization. Topics include cryptographic infrastructure, distributed systems security architectures, database systems security architectures, Internet security architectures, network security architectures and e-commerce security architectures.

ITIS 6230. Information Infrastructure Protection. (3) Prerequisite: ITIS 6200 or 6201. This course discusses methodologies, tools, and technologies that are important for protecting information systems and information infrastructures. Topics covered include: techniques, processes and methodologies for information security risk assessment and management, tools and technologies for critical infrastructure protection, methodologies for continuous operation and recovery from disasters. Although not explicitly mentioned in the current course description, the course covers incidence response as an important part of risk management. This course does not require programming exercises so our certificate students can take this course with the background gained through the introduction to security and privacy course (ITIS 6201). We will develop additional course material for the course by including lab exercises built on top of the common health IT lab and use examples specific health IT applications.

ITIS 6240. Applied Cryptography. (3) Prerequisite: Full graduate standing or permission of department. This course provides students with an understanding of modern cryptographic techniques, algorithms and protocols that are of fundamental importance to the design and implementation of security critical applications. The course not only covers standard cryptographic techniques, but also exposes students to the latest advances in applied cryptography. Topics include secret and public key ciphers, stream ciphers, one-way hashing algorithms, authentication and identification, digital signatures, key establishment and management, secret sharing and data recovery, public key infrastructures, and efficient implementation

(*) ITIS 6342. Information Technology Project Management. (3) Prerequisite: Permission of department. Introduce the student to problems associated with managing information technology projects involving, particularly, integration of systems, development of client-specific solutions, and project justification. The course will move beyond the classic techniques of project management and integrate communication software/systems, multi-site, multi-client facilities projects, cultural issues involved with managing interdisciplinary teams, and the effect of rapid technological obsolescence on project justification, funding and continuance.

New Courses

(*H) HCIT 5370. Health Vocabularies and Classification Systems. (3) Development of fundamental medical terminology, consisting of basic word structure (including word analysis, combining forms, suffixes, prefixes, and pronunciation) of descriptive medical terms pertaining to the body as a whole and to each body system. Clinical vocabularies, terminologies and coding systems, along with definitions, are described in the context of caring and treating patients. Terms covered will include diseases, diagnoses, findings, operations, treatments, drugs, and administrative items as utilized to support recording and reporting a patient's care at varying levels of detail via an electronic medical record. Identifying appropriate representation elements, uses, and sources in order to apply them in the context of health information systems and communication.

(*I) HCIT 5375. Computer Vocabularies and Programming Systems. (3) Prerequisite: permission of department. Study of the terminology and concepts used in Information Technology, Computer Science, and Information Systems. Topics will include computers and their components, system and application software, programming paradigms, databases and data warehouses, networks, Internet, Web, security, personal digital assistants, communications, data formats and media, data representations, computer games, and technology trends. The course will also explore technological constraints introduced by the intricacies of varying application domains (Spring, Fall).

(*I) HCIT 5376. Introduction to Programming for Health Informatics. (3) Foundational use of object-oriented programming and scripting techniques to solve common problems in health informatics. Topics covered will include data structures for electronic health records; developing basic electronic health record applications; relational database connectivity; and interfacing with industry standard health information systems.

HCIT 6070 Current Issues in Health Informatics. (3) Current topics and issues related to Health Informatics including health policy analysis and development, ethical issues, structure of health administrative and delivery systems, assessment of population health, models of health care delivery, access and quality of care issues.

(*) HCIT 6380 Introduction to Health Informatics. (3) Fundamental concepts and techniques in application data management for Health Informatics. Understanding reference terminologies, data mapping and conversion, and supporting data storage and formats. Internal and external policy issues governing data collection, storage, exchange, and compliance. A detailed look at the Electronic Health Record and digitized Personal Health Record as used in current health care environments. This course primarily covers AHIMA HIM competency I.A

(*) HCIT 6385 Healthcare Communication and Leadership. (3) Principles and useful techniques for effective oral presentations, poster presentations, scientific writing. The class will critique and help revise each other's presentations and learn how to enhance communications. Students will learn how to properly organize and run a meeting. The course also covers negotiation, conflict management, and influence. Students will use several approaches to evaluate their individual leadership style. The class will complete a management style assessment, and analyze leadership styles of prominent leaders in the e-health environment, using contemporary leadership theory and principles. This course primarily covers AHIMA HIM competency III.A

HCIT 6390 Advanced Programming for Health Informatics. (3) Advanced use of object-oriented programming and scripting techniques applied to case studies in health informatics development. This course emphasizes programming techniques beyond the fundamentals, with emphasis on efficiency in speed, data structures and file size. Students will learn how to optimize code and databases so that the demands of large-scale health information systems can be performed in acceptable amounts of time while minimizing hardware requirements. Topics covered will include algorithm optimization, optimization of database queries and development for software as a service.

HCIT 6391. Architecting Health Information Systems. (3) Planning, implementation, and maintenance of Health Information Systems for organizations. Development of hardware and software requirements for system deployment, including cost/benefit analysis, assessment of work flow, interface, human resource factors, as well as capability assessment for regulatory requirements. Policy and procedure development for capability evaluation, regulatory compliance, system use, and data exchange.

HCIT 6392. Enterprise Health Information Systems. (3) Practical case studies in the use of large-scale Health Information Systems. Survey of industry standard software tools and best practices. Laboratory experience in management and analytics for Electronic Health Records and enterprise data. Evaluation and selection of clinical, administrative, and specialty information technology applications for health organization.

HCIT 6393. External Health Data Integration. (3) (To Be Developed) Secondary data sources (registries and indexes; databases – such as MEDPAR, NPDB, HCUP); Healthcare data sets (such as OASIS, HEDIS, DEEDS, UHDDS, UACDS, NEDSS, NMMFS); National Healthcare Information Infrastructure (NHII); Standards and regulations for documentation (such as JCAHO, CARF, COP, AAAHC, AOA) ; Health information standards (such as HIPAA, ANSI, ASTM, LOINC, UMLS, MESH, Arden Syntax, HL-7); Healthcare taxonomies, clinical vocabularies, terminologies/nomenclatures (such as ICD-9-CM, ICD-10, CPT, SNOMED-CT, DSM-IV); Severity of illness systems; Vital statistics; Epidemiology; Reimbursement Methodologies; Clinical data and reimbursement management; Compliance strategies and reporting (e.g. National Correct Coding Initiative); Charge-master management; Casemix management; Audit process such as compliance and reimbursement; Payment systems (such as PPS, DRGs, APCs, RBRVS, RUGs); Commercial, managed care and federal insurance plans.

ITIS 6199 Principles of Computer Networks and Databases. (3) (To Be Developed) Computer concepts (hardware components, systems architectures, operating systems and languages, and software packages and tools); Communications technologies (networks—LANS, WANS, VPNs; data interchange standards—NIST, HL-7); Internet technologies (Intranet, web-based systems, standards – SGML, XML); Data, information and file

structures (data administration, data definitions, data dictionary, data modeling, data structures, data warehousing, database management systems); Data storage and retrieval (storage media, query tools/applications, data mining, report design, search engines); Data security (protection methods—physical, technical, managerial, risk assessment, audit and control program, contingency planning, data recovery, Internet, web-based, and e-Health security).

IV. FACULTY

- A. List the names of persons now on the faculty who will be directly involved in the proposed program. Provide complete information on each faculty member's education, teaching experience, research experience, publications, and experience in directing student research, including the number of theses and dissertations directed for graduate programs. The official roster forms approved by SACS can be submitted rather than actual faculty vita.

There are significant numbers of existing faculty members from the College of Health and Human Services and the College of Computing and Informatics at UNC Charlotte that will be directly involved and serve as the main faculty body in the proposed program. These faculty members offer cutting edge knowledge and expertise in both health and informatics. In addition, industry practitioners with appropriate credentials will also be invited to serve as adjunct faculty for the program on needed basis. Table IV-1 shows the list of faculty members for the proposed Health Informatics PSM.

- B. Estimate the need for new faculty for the proposed program over the first four years. If the teaching responsibilities for the proposed program will be absorbed in part or in whole by the present faculty, explain how this will be done without weakening existing programs.

Given the substantial faculty critical mass and expertise that already exist at UNC Charlotte, no major need for new faculty is anticipated in the first four years. As Table IV-1 demonstrates, the existing faculty at the university, plus adjunct faculty with field experience from our industry partners, should be able to teach most of the required courses in the proposed program. Many of the courses in the proposed program will be shared with the existing degree programs in the College of Health and Human Services and the College of Computing and Informatics. Such sharing will create synergy between the proposed program and existing programs, and also between the two colleges involved. Such synergy, we believe, will help to strengthen the existing programs. Some new courses, as articulated in this document, will need to be created. As the program enrollment grows, we expect to add new faculty members, possibly with interdisciplinary expertise and/or joint hiring, to further strengthen both the proposed and the existing programs.

- C. If the employment of new faculty requires additional funds, please explain the source of funding.

New faculty positions to support growth of the proposed new program will occur through normal university allocation processes. Because the strong existing base of faculty for the new program already exists in the College of Health and Human Services and the College of Computing and Informatics, we expect that the normal allocation process of new faculty positions for the two colleges through our growth will be sufficient to satisfy the new faculty needs of the proposed program.

- D. Explain how the program will affect faculty activity, including course load, public service activity, and scholarly research.

The new program will help to create new opportunities for research, scholarly activities, and collaboration for the faculty members in both colleges. The combination of health,

healthcare, and informatics represent fertile ground for research, innovation, and technology development. This new program will help to build bridges among the faculty, among the disciplines, between colleges, and between UNC Charlotte and industry. It will create additional opportunities for the faculty to work with industry and community partners. Given the size and scale of both colleges, as well as anticipated addition of hiring of adjunct faculty and new faculty members in both colleges through our normal growth, we the introduction of this new program will not increase the faculty teaching load.

Table IV-1 List of Faculty Members for the Health Informatics PSM

Faculty Name	Title	Highest Degree and Institution	Other Degrees and Institutions
Dr. Ahmed A. Arif	Associate Professor, Public Health Sciences, UNC Charlotte	Ph.D., Epidemiology, 2001, University of Texas, Houston	M.S., Biology, 1996, Western Kentucky University M.B., B.S., Medicine, 1991, Sind Medical College, Karachi, Pakistan
Dr. Srinavas Akella	Associate Professor, Computer Science, UNC Charlotte	Ph.D., Robotics, 1996, Carnegie Mellon University	M.S., Robotics, 1993, Carnegie Mellon University
Dr. Christopher Blanchette	Associate Scientist and Director, Center for Pharmaco-economic & Outcomes Research, Lovelace Respiratory Research Institute	Ph.D., Pharmaceutical Health Services Research, 2007, University of Maryland	M.S., Epidemiology, 2007, University of Maryland P.G.C., Clinical Research Management, 2003, Duke University M.A., Medical Sociology, 2002, UNC Charlotte B.A., History, 2000, UNC Charlotte B.S., Psychology, 2000, UNC Charlotte
Dr. William Brandon	Metrolina Medical Foundation Distinguished Professor of Public Policy on Health, UNC Charlotte	Ph.D. Political Science, 1975, Duke University	M.P.H., Health Policy and Administration, 1976, UNC Chapel Hill M.Sc., Politics, 1967, University of London B.A., Philosophy & Political Science, 1973, The John Hopkins University
Ms. Peggy Burke	Corporate Director, Internal Audit and Compliance, Novant Health	M.B.A., Business Administration, 1995, UNC Charlotte	B.S., Medical Technology, 1974, Medical College of Virginia B.A., Biology, 1973, University of the South
Dr. Bei-Tseng Chu	Professor and Chair, Software and Information Systems, UNC-Charlotte	Ph.D. Computer Science, 1988, University of Maryland, College Park	MS, Computer Science, 1985, University of Maryland College Park
Dr. Yi Deng	Professor, Computer Science, UNC Charlotte	Ph.D. Computer Science, 1992, University of Pittsburgh	M.Sc., Computer Science, 1990, University of Pittsburgh
Mr. Thomas Elmore	Vice President, Growth and Development, Novant Health	M.A., Business Administration, 1979, East Carolina University	M.S., Industrial Engineering, 1976, North Carolina State University B.S., Engineering Operations, 1974, North Carolina State University
Dr. John Fisher	Research Assistant Professor, Public Health Sciences, UNC Charlotte	Ph.D., Information Systems/Decision Support, 2002, University of South Florida	M.S., Management Information Systems, 1999, University of South Florida M.A., National Security Policy, 1988, US Naval War College M.S., Business Administration, 1983, Indiana University M.S., Administration, 1983, University of Notre Dame M.S. Ocean Engineering, 1973, MIT B.S. Ocean Engineering, 1972, US Naval Academy
Dr. Mirsad Hadzikadic	Professor and Director of NC Complex Systems Institute	Ph.D., Computer Science, 1987, Southern Methodist	MS, Computer Science, 1981, University Banja Luka;

Faculty Name	Title	Highest Degree and Institution	Other Degrees and Institutions
		University	M.P.A., Government, 2009, Harvard University
Dr. Sonya Hardin	Associate Professor, School of Nursing, UNC Charlotte	Ph.D., Nursing, 1990, University of Colorado Health Sciences Center	M.S.N., Adult Health Nursing, 1984, UNC Charlotte B.S.N, Nursing, 1981, UNC Charlotte
Dr. Andrew Harver	Professor, Public Health Sciences, UNC Charlotte	Ph.D., Psychology-Psychophysiology, 1984, Ohio University	M.S., Psychology Experimental, 1982, Ohio University B.S., Psychology, 1979, University of Washington
Dr. Robert Kosara	Assistant Professor, Computer Science, UNC-Charlotte	Ph.D., Computer Science, 2001, Vienna University of Technology	MS, Computer Science, 1999, Vienna University of Technology
Dr. James Laditka	Associate Professor, Public Health Sciences, UNC Charlotte	Ph.D., Public Administration, 2002, Syracuse University	M.P.A., 1998, Syracuse University D.A., 1992, State University of New York B.S., Computer Science, 1985, State University of New York B.A., English, 1973, Colgate University
Dr. Sarah Laditka	Associate Professor, Public Health Sciences, UNC Charlotte	Ph.D., Public Administration, 1995, Syracuse University	M.A., Economics, 1994, Syracuse University M.B.A., Finance, 1992, Syracuse University B.P.S., Health Services Management, 1987, State University of New York Institute of Technology A.A.S., Registered Nursing, 1979, State University of New York B.A. English Literature, 1974, Colgate University
Dr. Celine Latulipe	Assistant Professor, Software and Information Systems, UNC Charlotte	Ph.D., Computer Science, 2006, University of Waterloo	M. Math, Computer Science, 2000, University of Waterloo
Dr. Heather Lipford	Assistant Professor, Software and Information Systems, UNC Charlotte	Ph.D., Computer Science, 2005, Georgia Institute of Technology	BS, Computer Science, 1995, Michigan State University
Dr. Elena Platonova	Assistant Professor, Public Health Sciences, UNC Charlotte	Ph.D., Healthcare Strategic Management, 2005, University of Alabama at Birmingham	M.A., Health Administration, 1998, University of South Carolina Certified Teacher of English and German, 1986, Chelyabinsk State Pedagogical Institute, Chelyabinsk, Russia Certified Health Care Assistant for USSR Armed Forces, 1983, Chelyabinsk State Pedagogical Institute, Chelyabinsk, Russia
Dr. Roger Poitras	Senior Vice President, Operations, MedCath, Incorporated	Doctor of Health Administration, 2007, Medical University of South Carolina	M.A., Human Resources, 2003, Rollins College M.B.A., Business, 1996, Webster University

Faculty Name	Title	Highest Degree and Institution	Other Degrees and Institutions
			MHSM, Health Services Management, 1994, Webster University B.S., Business Administration, 1991, University of Central Florida
Dr. William Ribarsky	Bank of America Endowed Chair in Information Technology, Chair, Computer Science, UNC-Charlotte	Ph.D., 1974, Physics, University of Cincinnati	MS, Physics, 1970, University of Cincinnati
Dr. Anita Roger	Assistant Professor, Software and Information Systems, UNC Charlotte	Ph.D., Computer Science, 2003, University of Massachusetts	MS, Computer Science, 1998, University of Massachusetts
Ms. Angela D. Sanford	Assistant Vice President, Finance, Carolinas HealthCare System	M.S.A., Accounting, 2009, University of Phoenix	M.B.A., Management and Leadership, 1997, Baldwin-Wallace College B.B.A., Management, 1983, Northwood University
Dr. James Studnicki	Professor, Public Health Sciences, UNC Charlotte	Sc.D., 1972, Johns Hopkins University	M.P.H., 1970, Johns Hopkins University M.B.A., 1968, George Washington University B.A.Sc., 1965, University of Pittsburgh
Dr. William Tolone	Director, Defense Computing Center; Associate Professor, Software and Information Systems, UNC Charlotte	Ph.D. Computer Science, 1996, University of Illinois at Urbana-Champaign	BS. Computer Science and Mathematics, 1989, Milikan University
Dr. Lucille Travis	Professor, School of Nursing, UNC Charlotte	Ph.D., Higher Education Administration, 1989, The Ohio State University	M.S., Medical-Surgical Nursing, 1969, The Ohio State University B.S.N., Nursing, 1968, The Ohio State University
Dr. Weichao Wang	Assistant Professor, Software and Information Systems, UNC Charlotte	Ph.D. Computer Science, 2005, Purdue University	MS, Computer Science, 2002, Purdue University
Dr. Yongge Wang	Associate Professor, Software and Information Systems, UNC Charlotte	Ph.D., Computer Science, Heidelberg University, Germany	M.S., Computer Science, 1992, Nankai University, China
Dr. David Wilson	Associate Professor, Software and Information Systems, UNC Charlotte	Ph.D., Computer Science/Artificial Intelligence, 2001, Indiana University	MS, Computer Science, 1995, Indiana University
Dr. Xintao Wu	Associate Professor, Software and Information Systems, UNC Charlotte	Ph.D., Information Technology, 2001, George Mason University	M.E., Computer Engineering, Chinese Academy of Space Technology
Dr. Yuliang Zheng	Professor, Software and Information Systems, UNC Charlotte	Ph.D., Computer and Electrical Engineering, 1991, Yokohama National University, Japan	M.E., Computer and Electrical Engineering, 1988, Yokohama National University, Japan
Dr. Wensheng Wu	Assistant Professor, Computer Science, UNC Charlotte	Ph.D., Computer Science, 2006, University of Illinois Urbana-Champaign	MS, Computer Science, 1994, Fudan University, China

V. LIBRARY

- A. Provide a statement as to the adequacy of present library holdings for the proposed program.

Consultation with the library staff was initiated on March 31, 2010. The evaluation by Reese A. Manceaux was completed on April 1, 2010. The assessment is attached as an Appendix A, and the conclusion is that the holdings are adequate.

- B. State how the library will be improved to meet new program requirements for the next five years. The explanation should discuss the need for books, periodicals, reference material, primary source material, etc. What additional library support must be added to areas supporting the proposed program?

There are no plans to increase library holdings specifically for Health Informatics at this time. Expansion of relevant holdings will be sought as funds become available.

- C. Discuss the use of other institutional libraries.

Holdings of other major libraries in the North Carolina system and beyond are accessible to faculty and students through interlibrary loan.

VI. FACILITIES AND EQUIPMENT

A. Describe facilities available for the proposed program.

Because of the highly collaborative nature of this proposed program, the facilities in both the Colleges of Health and Human Services and Computing and Informatics are available to support the program. The following is a summary of the list of teaching and research laboratories, as well as equipment housed in these labs that will be made available for the proposed program.

<u>Table VI-A. Available Laboratories and Facilities for the Proposed PSM</u>	
<i>College of Computing and Informatics</i>	
Name	Description
Teaching Laboratories:	
CCI General Purpose Computer Lab	General teaching lab equipped with desk top computers available to all college students, 1945 sq ft., Woodward Hall.
Introduction to Computer Science Lab	Hands-on teaching lab for introduction to computer science courses, ~1000 sq ft., Woodward Hall
Computer Teaching Labs	Three (3) teaching labs equipped with Apple Mac desktops for teaching and class projects, in the new Bioinformatics Building. Over 3000 sq ft.
Cyber Corps lab	Computer security laboratory, 400 sq ft.
Relevant Research Labs will be made available for teaching purpose as needed:	
Computer Science Networking Research Lab	
Visualization laboratory	
Computer Science Biomedical Research and Instrumentation Lab	
Information and Infrastructure Security Lab	
Vulnerability Assessment Lab	
Cyber Defense and Network Assurance Lab	
Honey Net Research Lab	
Computer Forensics Lab	
Human-Computer Interaction Lab	
<i>College of Health and Human Services</i>	
Teaching Laboratories:	

Computer Teaching Lab – CHHS 342	24-seat hands-on computer lab equipped with campus-standard and discipline-specific software, e.g. clinical decision support tools. Over 980 sq ft.
Computer Teaching Lab – CHHS 370	51-seat hands-on computer lab equipped with campus-standard and discipline-specific software, e.g. clinical decision support tools. Over 1300 sq ft.
Computer Teaching Lab – CHHS 384	27-seat hands-on computer lab equipped with campus-standard and discipline-specific software, e.g. clinical decision support tools. Over 650 sq ft.
Computer Teaching Lab – CHHS 386	23-seat hands-on computer lab equipped with campus-standard and discipline-specific software, e.g. clinical decision support tools. Over 660 sq ft.
Proctor Room – CHHS 368	6-seat hands-on proctor room equipped with campus-standard and discipline-specific software, e.g. clinical decision support tools. 180 sq ft.
Videoconferencing teaching classroom – CHHS 380	105-seat auditorium equipped with videoconferencing capability, multiple cameras, displays, and a control room. Over 2200 sq ft.
Portable Videoconferencing Units	Two portable videoconferencing units capable of connecting from any CHHS classroom, conference room, or office.
Distance/Online Learning environment	Facilities, personnel and support are available to all colleges through the UNC Charlotte Center for Teaching and Learning (CTL) supported by CHHS Health Informatics staff.

- B. Describe the effect of this new program on existing facilities and indicate whether they will be adequate, both at the commencement of the program and during the next decade.

The existing facilities and laboratories in the College of Health and Human Services and the College of Computing and Informatics will be adequate to support the new program in the first five years. Furthermore, given the scale of the two colleges and their combined space and facilities, the new program will not negatively affect existing program offerings.

Beyond the first five years from the start of the new program, new space, laboratories and/or equipment may be needed as the proposed PSM grows in enrollment and in offerings. With the normal resource allocation process at the university, as well as with other sources of funding (for example: federal grants), the need for new facilities can be satisfied.

C. Discuss any information technology services needed and/or available.

The Information and Technology Services (ITS) at UNC Charlotte, under the leadership of the Vice Chancellor and Chief Information Officer, is responsible for providing campus wide technology support and services for all the colleges. The ITS systems and organization are designed to support the University's goals and programs, including the proposed PSM. A common architecture serves as an enabler for excellent and cost effective services. Specifically ITS:

- Promotes the use of Information Systems for enhancing teaching, learning and research;
- Provides access to secure, quality, and timely information and online services;
- Provides excellent support for campus-wide systems and technologies;
- Evaluates and recommends new technologies as to their capability to promote the University's mission and goals; and
- Uses all campus IT resources effectively to provide agreed on services and solutions.

A component of ITS, the Center for Teaching and Learning, provides support for instructional technology.

In addition, the Office of Technical Support (OTS) and its team of technical staff in the College of Computing and Informatics (CCI) are responsible for providing services specifically for CCI where there is a gap that is not provided for by ITS. OTS architects, implements, and maintains numerous systems and services for CCI. OTS strives to support the research and teaching efforts of CCI by introducing and maintaining appropriate infrastructure.

An analogous unit to OTS – Health Informatics (HI) – supports the College of Health and Human Services. The HI team serves the special IT needs of the CHHS faculty, staff, and students, and has supported collaborative projects involving faculty members from both colleges.

Software training applications include: patient registration; chart analysis and deficiency management for health records; navigating and retrieving clinical information from the EHR; clinical decision support tools, alerts, and data quality checks; designing and using abstracting systems; process analysis and workflow redesign; and, quality and patient safety applications, among others. Clinical software laboratory environments have been available to UNC Charlotte students at the Carolina Medical Center and the Salisbury Veterans Administration Hospital.

We anticipate developing and deploying a clinical software laboratory environment capable of meeting the training needs of our students. Initially, we expect to negotiate access to the American Health Information Management Association (AHIMA) Virtual

Lab that was established in March 2006. This internet-based software lab and lesson repository was developed with contributions from software vendors, educators, and Health Information Technology professionals.

These combined capabilities will be adequate to support the anticipated information technology needs for the new program.

D. Discuss sources of financial support for any new facilities and equipment.

As discussed above, the need for new facilities and equipment for the new program is not anticipated in its first five years of existence. After the first five years and when the program grows beyond the capability of our current infrastructure, we expect that financial support for new facilities and equipment will come from three possible sources: a) the normal budget and resource allocation process at the university to accommodate the program growth; b) grant opportunities from federal and private foundations; and c) funding and/or in-kind support from local industry partners.

VII. ADMINISTRATION

Describe how the proposed program will be administered, giving the responsibilities of each department, division, school, or college. Explain any inter-departmental or inter-unit administrative plans. Include an organizational chart showing the "location" of the proposed new program.

The interdisciplinary Health Informatics Professional Science Masters (PSM) program will be administrated jointly by three units at UNC Charlotte - The Graduate School (GS), the College of Health and Human Services (CHHS) and the College of Computing and Informatics (CCI). Because of its interdisciplinary nature and the fact that its scope goes beyond the ones of either CHHS or CCI, the Graduate School will be the home for this new degree and will be responsible for the oversight and administrative functions of the program. CHHS and CCI will jointly be responsible for the academic functions of the program. There will be a Health Informatics PSM Program Director, who will be responsible for the program's day-to-day operations. The Program Director reports to the Dean of the Graduate School, with dotted line reporting to the CHHS and CCI Deans.

A. Organizational Chart

The organization chart for the administration of the Health Informatics Professional Science Masters (PSM) Program is shown in Figure VII-1. Because the PSM is housed in the GS, the Dean of GS will have the overall administrative responsibility of the Program. The GS Dean appoints and directs the PSM Program Director, who will serve as the Dean's representative for the administration and operation of the Program. The Program Director has dotted reporting line responsibility to the offices of CHHS Dean and CCI Dean. The College of Health and Human Services (CHHS) and the College of Computing and Informatics (CCI) will be jointly responsible, in consultation with GS, for the academics and operations of the program, including curriculum design, course scheduling and instruction, student advising, mentoring, internship placement, etc.

To perform these functions, the CHHS and CCI Deans or their representative(s) will appoint an appropriate number of graduate faculty members from their respective colleges to the joint CHHS/CCI PSM Program Committee. The Committee will be chaired by the PSM Program Director. Members of the Committee will serve for two-year terms. The Committee is responsible for defining admission requirements, curriculum design, program requirements, administering student advising and mentoring, administering student internships, and other relevant academic affairs of the PSM. Students for the PSM will come from two broader backgrounds – those with education and training in health and healthcare, and those in science and technology. Two subcommittees – the Health Track Committee and the IT Track Committee – will be established to provide mentoring, service and management of respective group of students.

The Offices of CHHS, CCI, and GS Deans will be responsible for allocating necessary faculty members and resources for the teaching and mentoring needs of the Program, as well as necessary teaching laboratories and facilities, technology infrastructure and support system for the PSM. When the Program enrollment warrants and resources become available, a dedicated PSM Program Staff team will be put in place to provide support functions for the Program. In the interim, staff members from CHHS, CCI and GS will be used for this role.

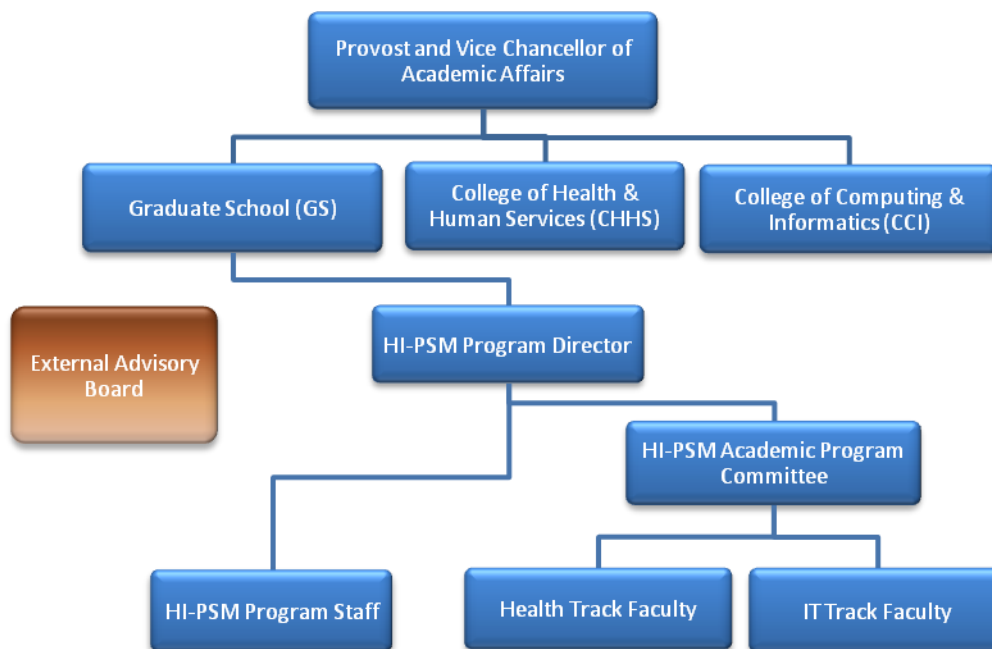


Figure VII-1 Organizational chart for the Health Informatics PSM

A Community Advisory Board, consisting of leaders and experts in the health, healthcare and technology industry and community, has been established. The Board will provide advice in the direction of the PSM, industry needs and curriculum design. The Board also serves as an advocate for the Program to the industry and to the community. Companies represented on the Board also represent major employers for the PSM students and help to provide internship opportunities for the PSM students.

B. The Health Informatics Professional Science Master's Faculty

In accordance with the criteria developed for each program or unit and approved by the Graduate Council, and upon recommendation of the relevant department chairs, the Dean of GS appoints Graduate Faculty members for renewable five-year terms. Members of the Graduate Faculty offer courses and seminars and supervise research and dissertation at an advanced level of scholarship.

The PSM faculty will comprise the Graduate Faculty members, whose expertise is relevant to the PSM, from the College of Health and Human Services and the College of Computing and Informatics. Regarded industry experts with proper credentials will also be recruited to serve as Adjunct Faculty for the PSM. In addition, any member of the Graduate Faculty at the University with proper credentials and expertise and with interest to teach and/or serve on committees of the PSM may apply to become a member of the PSM faculty. The PSM faculty will be appointed by the PSM Program Director in consultation with the Joint CHHS/CCI Program Committee. The appointments will be for five-year terms with re-appointments made according to guidelines established by the PSM Program Director, approved by the Deans of GS, CHHS and CCI.

C. The Joint CHHS/CCI Health Informatics PSM Program Committee

The Committee will be composed of an equal number of Graduate Faculty members from CHHS and CCI departments, respectively. The committee members are nominated by relevant

department chairs in the CHHS and CCI departments, and approved by the Offices of CHHS and CCI Deans. The PSM Program Director and a representative of the GS Dean will have ex officio membership on the Committee, and the Program Director serves as the chairperson for the Committee. Membership on the Committee will be for a two-year period.

The Committee works with the PSM Program Chair to set policy and:

- Recommends to the Graduate School applications for admission to the program
- Approves the student's advisory committee and internship or project plan
- Recommends to the Graduate School qualified candidates for the degree
- Assures that all requirements are fulfilled by each candidate
- Recommends course additions and alternations as appropriate
- Recommends and approves faculty in the program
- Plans and evaluates the program

D. The Health Informatics PSM Program Director

With the approval of the GS Dean, in consultation with the CHHS and CCI Deans, the PSM Program Director has the authority for all aspects of the PSM program. The Program Director has the direct responsibility for day to day operations of the Program. The duties of the Program Director include:

- Curriculum and conduct of the program
- Chairing meetings of the PSM Program Committee
- Communicating assessment of the program and personnel to the chairs of relevant participating departments
- Report program operation status to the GS, CHHS and CCI Deans
- Overseeing recruitment efforts for the program
- Evaluating program outcomes and student employment
- Recommending operating budgets to the GS, CHHS and CCI Deans, and supervising expenditures
- Coordinating scheduling of courses among the participating units
- Assuring proper maintenance of student records
- Working with the Community Advisory Committee
- Representing the program to external constituencies
- Supervising the PSM Program Staff
- Seeking and maintaining accreditation

E. The College of Health and Human Services

CHHS comprises three academic departments (Kinesiology, Public Health Sciences and Social Work) and the School of Nursing. The Dean of the College has the administrative responsibility for supervision of all departments, school and programs housed within the College.

F. The College of Computing and Informatics

CCI has three academic departments, including Computer Science, Software and Information Systems, and Bioinformatics and Genomics. The Dean of the College has the administrative responsibility for supervision of all departments and programs housed within the College.

G. The Graduate School

At the University of North Carolina at Charlotte, the Dean of the Graduate School is the administrative officer with primary responsibility for the supervision of graduate programs. The Dean is responsible for the executive and administrative affairs of the Graduate School in accordance with policies determined by the UNC Charlotte Graduate Council, the Graduate Faculty, and the Faculty Council. The Graduate School is responsible for monitoring the quality of graduate programs, the final admission of graduate students, appointments to the Graduate Faculty, and the enhancement of research activities essential to the conduct of graduate programs.

H. Student's Advisory Committee

Upon admission to the Health Informatics PSM, the student is assigned an appropriate Faculty Advisor from the PSM Faculty from the participating departments, based on the student's prior training and stated interests. The Faculty Advisor will assist the student to develop a Plan of Study for his or her first year of enrollment in the Program and assist the student in identification of an appropriate internship or research project. The student may choose a different PSM Faculty member as Advisor after the first semester. Before the beginning of the third semester following admission to the Program, the student must form a three-member Advisory Committee chosen from the PSM faculty. At least one member should be from CHHS and one from CCI, respectively. The assigned Faculty Advisor will chair the Committee. The PSM Program Director must approve the composition of the committee.

Subject to approval of the GS Dean, the functions of the committee are to:

- Approve the student's plan of study
- Evaluate the student's academic progress
- Evaluate the internship project or research project plan
- Certify the candidate's qualifications for the degree subject to the approval of the GS Dean.

VIII. ACCREDITATION

Indicate the names of all accrediting agencies normally concerned with programs similar to the one proposed. Describe plans to request professional accreditation. If the proposed new degree program is at a more advanced level than those previously authorized or if it is in a new discipline division, was SACS notified of a potential "substantive change" during the planning process? If so, describe the response from SACS and the steps that have been taken to date with reference to the applicable procedure.

Professional Science Master's programs are so designated by the Council of Graduate Schools and can be designated as PSM affiliates if they meet the majority of the PSM guidelines (available at <http://www.sciencemasters.com>). We have closely followed the PSM recognition guidelines in designing this program. By designing this program specifically to follow the PSM model we are laying the groundwork to seek official designation as a PSM program.

The program expects to seek professional (i.e., disciplinary) accreditation from the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) when it is available for health informatics programs. CAHIIM currently offers disciplinary accreditation at the associate and baccalaureate degree levels (<http://www.cahiim.org/accredstnds.html>), and approval at the graduate level for health information management programs (<http://www.cahiim.org/applyaccredgrad.html>); as of 12/21/09, CAHIIM listed six approved master's programs in health information management. CAHIIM will also provide accreditation for graduate level Health Informatics and Health Information Management programs with applications available for the program review process from 4/5/10. Proposed accreditation standards have recently been published:

http://library.ahima.org/xpedio/groups/public/documents/accreditation/bok1_046877.pdf

The proposed new degree program is not at a more advanced level than those previously authorized, nor is it in a new discipline division.

IX. SUPPORTING FIELDS

Are other subject-matter fields at the proposing institution necessary or valuable in support of the proposed program? Is there needed improvement or expansion of these fields? To what extent will such improvement or expansion be necessary for the proposed program?

There is extant, strong expertise at UNC Charlotte in the areas of computing, informatics, and health. No expansion of expertise per se will be needed to implement the proposed program. However, the establishment of the program will bring student enrollment growth that is anticipated to bring additional faculty to the university, which will add depth and further opportunities for collaboration in health informatics.

In addition to the two colleges that are collaborating to offer the proposed degree, other expertise and resources at UNC Charlotte will be valuable in support of the proposed program. Among these additional resources are:

- (1) the Center for Professional and Applied Ethics (CPAE). CPAE sponsors lectures and workshops for the campus and Charlotte community; its schedule includes numerous topics related to health care, IT, and business ethics led by prominent national experts;
- (2) The College of Liberal Arts and Sciences includes expertise in related fields, including health psychology, health policy, and public administration;
- (3) and The Belk College of Business adds expertise in additional related fields, including health economics, and strategic management of health care systems.

X. ADDITIONAL INFORMATION

Include any additional information deemed pertinent to the review of this new degree program proposal.

N/A

XI. BUDGET

Provide estimates (using the attached form) of the additional costs required to implement the program and identify the proposed sources of the additional required funds. *Use SCH projections (section II.C.) to estimate new state appropriations through enrollment increase funds.* Prepare a budget schedule for each of the first three years of the program, indicating the account number and name for all additional amounts required. Identify EPA and SPA positions immediately below the account listing. New SPA positions should be listed at the first step in the salary range using the SPA classification rates currently in effect. Identify any larger or specialized equipment and any unusual supplies requirements.

For the purposes of the second and third year estimates, project faculty and SPA position rates and fringe benefits rates at first year levels. Include the continuation of previous year(s) costs in second and third year estimates.

Additional state-appropriated funds for new programs may be limited. Except in exceptional circumstances, institutions should request such funds for no more than three years (e.g., for start-up equipment, new faculty positions, etc.), at which time enrollment increase funds should be adequate to support the new program. Therefore it will be assumed that requests (in the “New Allocations” column of the following worksheet) are for one, two, or three years unless the

institution indicates a continuing need and attaches a compelling justification. However, funds for new programs are more likely to be allocated for limited periods of time.

Please see Appendix B for summaries of estimated additional costs in the first four years of program operation.

XII. EVALUATION PLANS

All new degree program proposals must include an evaluation plan which includes: (a) the criteria to be used to evaluate the quality and effectiveness of the program, (b) measures to be used to evaluate the program, (c) expected levels of productivity of the proposed program for the first four years of operation (number of graduates), (d) the names, addresses, e-mail addresses, and telephone numbers of at least three persons (six reviewers are needed for graduate programs) qualified to review this proposal and to evaluate the program once operational, and (e) the plan and schedule to evaluate the proposed new degree program prior to the completion of its fifth year of operation once fully established.

PROGRAM EVALUATION FORMAT

A. Criteria to be used to evaluate the proposed program:

- Quality of applicants and entering students
- Progress toward degree
- Number of graduates from the program
- Successful placement of students in the program into internships with local health care companies
- Successful placement of the majority of graduates in positions in government/university/nonprofit research labs and in industry
- Successful placement of graduates not immediately seeking employment in advanced degree programs consistent with their health information technology training.

B. Measures to be used to evaluate the program:

- We expect to reach a steady-state enrollment of approximately 50 students in the program within four to five years, with about a quarter of those students being part time. Expected time to degree is 2-2 1/2 years beyond the baccalaureate degree for a full-time student. We expect to graduate approximately 20 students per year from the program once steady state is reached.
- One component of the Professional Science Master's training experience is an industry internship. While availability of industry internships will fluctuate, we can evaluate success based on whether we are taking full advantage of potential opportunities that do exist in the region.
- The program will be deemed successful if graduates pursue successful careers in government laboratories and industry.
- We recognize that some students entering a Professional Science Master's program may later develop an interest in academic research and doctoral training. The program will be deemed successful if those students not immediately seeking employment in their field after graduation are recruited into research

laboratories at UNC Charlotte for training or placed successfully in graduate programs at other institutions to continue training.

C. Projected productivity levels (number of graduates):

<u>Level</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>TOTALS</u>
B	_____	_____	_____	_____	_____
M	_____	_____	<u>20</u>	<u>30</u>	<u>50</u>
I/P	_____	_____	_____	_____	_____
D	_____	_____	_____	_____	_____

(Key: B-Bachelor's, M-Master's, I/P-Intermediate or Professional, D-Doctoral)

D. Recommended consultant/reviewers: Names, titles, addresses, e-mail addresses, and telephone numbers. May not be employees of the University of North Carolina.

Daniel Feinberg, MBA
 Assistant Clinical Professor and Program Director, M.S. in Health Informatics
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(or)

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John Lynch, Ph.D., Health Care Informatics Graduate Program Director
 Associate Professor, College of Health Sciences
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 2200 E. Kenwood Blvd.
 Milwaukee, WI 53201
 414-229-2645
 johnjl@uwm.edu

E. Plan for evaluation prior to fifth operational year.

Annual evaluations prior to the fifth year will consist of a review of achievements related to student recruitment, admissions, and retention; and in student course evaluations and satisfaction with advising. After two years, statistics regarding time to graduation also will be collected annually. Periodic surveys of alumni and employers will complement the data that will be collected annually. The Advisory Board and program committee will be asked for feedback on a regular basis, such as innovations in the field, which may signal a need to examine and potentially revise the curriculum.

XIII. REPORTING REQUIREMENTS

Institutions will be expected to report on program productivity after one year and three years of operation. This information will be solicited as a part of the biennial long-range planning revision.

Proposed date of initiation of proposed degree program: January 2011

This proposal to establish a new degree program has been reviewed and approved by the appropriate campus committees and authorities.

Chancellor: Philip J. Auboin

Appendix A

Atkins Library Consultation Report



J. Murrey Atkins Library

Consultation on Library Holdings

To: David Wilson
College of Computing and Informatics
Dept. of Software and Information Systems Graduate Coordinator

From: Reese Manceaux

Date: April 1, 2010

Subject: Proposed Graduate Degree Program in Health Informatics

Summary of Librarian's Evaluation of Holdings:

Evaluator: Reese A. Manceaux **Date:** 4/1/10

Check One:

1. Holdings are superior
2. **Holdings are adequate (Please see comments)**
3. Holdings are adequate only if Dept. purchases additional items.
4. Holdings are inadequate

Comments:

Atkins Library has adequate resources to support the courses proposed for the new graduate curriculum in Health Informatics. The library has an vast set of databases in the proposed areas of study. Journal articles and books that are not held by the Library can be obtained through Interlibrary Loan.

Once budget concerns are addressed, monograph purchases should increase in the area of medical informatics as well as other areas related to courses in this program.

A small sampling of subject searching in the Atkins Library online catalog reveals the following holdings in support of these courses. (See the table that follows). A search of only a few related subjects retrieved over 3,933 pertinent items. The monograph holdings are adequate. The book collection can be updated, as needed, through acquisitions by the appropriate departments.

In addition, the library purchases subscriptions to many electronic databases that provide major up-to-date research support such as Science Direct, CSA Biological Sciences/Biotechnology and Bioengineering Abstracts, Compendex, IngentaConnect, PubMed, SpringerLink, Web of Science, and Wiley Interscience - many with links to full text articles. The library also has electronic access to periodicals and other electronic resources (e-books, Skillport) that support many of the computer-related courses. All these resources support the overall Health and Human Services as well as Computing and Informatics programs as well.

Please refer to the table at the end of the document for the top journals in the subject area arranged by JCR Impact Factor.

Atkins Library Sample Holdings in Areas Related to Course
4/1/2010

Subject	Books/EBooks	After Year 2000	Journals
Medical Care - United States	1101	332	13
Epidemiology	561	167	30
Cryptography	205	59	4
Computer Security	818	506	24
Database Management	676	150	22
Medical Informatics	160	96	15
Computer Networks Security Measures	326	232	7
Medical Records – Access Control	86	33	0
Totals	3933	1575	115

Reese A. Manceaux
Evaluator's Signature

April 1, 2010

A current search of the 2008 Journal Citation Reports shows the Medical Informatics journals ranked by impact factor.

Of the top 20, Atkins Library holds 17 electronically (some concurrently in paper).

- Journal of Medical Internet Research
- Journal of the American Informatics Association (JAMIA)
- Medical Decision Making
- Intl. Journal of Medical Informatics
- Statistical Methods in Medical Research
- Statistics in Medicine
- Artificial Intelligence in Medicine
- IEEE Transactions On Information Technology In Biomedicine
- Journal of Biomedical Informatics
- Journal of Evaluation in Clinical Practice
- IEEE Engineering in Medicine and Biology Magazine
- International Journal of Technology Assessment in Health Care
- Medical & Biological Engineering & Computing
- Computer Methods and Programs in Biomedicine
- *Methods of Information in Medicine*
- Computers, Informatics, Nursing (CIN)
- Medical Informatics and the Internet in Medicine

Journal Summary List

Journals from: **subject categories MEDICAL INFORMATICS** [VIEW CATEGORY SUMMARY LIST](#)

Sorted by: [SORT AGAIN](#)

Journals 1 - 20 (of 20)

Navigation icons: <<< [] >>>

[MARK ALL](#) [UPDATE MARKED LIST](#)

Ranking is based on your journal and sort selections.

Mark	Rank	Abbreviated Journal Title <i>(linked to journal information)</i>	ISSN	JCR Data ^(j)					
				Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	Articles	Cited Half-life
<input type="checkbox"/>	1	J MED INTERNET RES	1438-8871	930	3.590		0.389	54	4.1
<input type="checkbox"/>	2	J AM MED INFORM ASSN	1067-5027	2574	3.428	3.886	0.560	100	5.2
<input type="checkbox"/>	3	MED DECIS MAKING	0272-989X	2566	2.929	2.853	0.568	81	8.7
<input type="checkbox"/>	4	INT J MED INFORM	1386-5056	1728	2.754	2.425	0.386	88	4.6
<input type="checkbox"/>	5	STAT METHODS MED RES	0962-2802	1517	2.177	2.600	0.421	38	9.1
<input type="checkbox"/>	6	STAT MED	0277-6715	11113	2.111	2.315	0.438	388	8.8
<input type="checkbox"/>	7	ARTIF INTELL MED	0933-3657	1025	1.960	2.222	0.145	55	5.6
<input type="checkbox"/>	8	IEEE T INF TECHNOL B	1089-7771	1341	1.939	2.825	0.476	84	4.4
<input type="checkbox"/>	9	J BIOMED INFORM	1532-0464	850	1.924	2.605	0.489	94	3.9
<input type="checkbox"/>	10	J EVAL CLIN PRACT	1356-1294	1057	1.843	1.769	0.559	143	4.0
<input type="checkbox"/>	11	IEEE ENG MED BIOL	0739-5175	1684	1.466	1.994	0.507	67	7.4
<input type="checkbox"/>	12	INT J TECHNOL ASSESS	0266-4623	1229	1.439	1.608	0.254	63	6.7
<input type="checkbox"/>	13	MED BIOL ENG COMPUT	0140-0118	2974	1.379	1.600	0.431	130	9.8
<input type="checkbox"/>	14	COMPUT METH PROG BIO	0169-2607	1479	1.220	1.284	0.209	115	6.8
<input type="checkbox"/>	15	METHOD INFORM MED	0026-1270	1156	1.057	1.155	0.556	63	5.6
<input type="checkbox"/>	16	CIN-COMPUT INFORM NU	1538-2931	249	0.968	1.242	0.265	34	4.1
<input type="checkbox"/>	17	MED INFORM INTERNET	1463-9238	258	0.922	1.025		0	6.2
<input type="checkbox"/>	18	J MED SYST	0148-5598	462	0.674	0.813	0.138	58	5.6
<input type="checkbox"/>	19	BIOMED TECH	0013-5585	406	0.592	0.681	0.395	43	5.5
<input type="checkbox"/>	20	J CANCER EDUC	0885-8195	477	0.513	0.764	0.022	45	7.6

Appendix B

Summary of Estimated Additional Costs

**Projected Funding for New Degree Program
 Master of Science in Health Informatics
 Regular Term 2010-11
 (Based on 2009-2010 Change in Student Credit Hours)**

Program Category	Change in Student Credit Hours			Instructional - Position Funding Factors			Instructional Positions Required		
	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral
Category I				708.64	169.52	115.56	0.000	0.000	0.000
Category II				535.74	303.93	110.16	0.000	0.000	0.000
Category III				406.24	186.23	109.86	0.000	0.000	0.000
Category IV				232.25	90.17	80.91	0.000	0.000	0.000

Fringe rates for staff
 FICA @ 7.65%
 Retirement @ 8.75%
 Medical @ \$4,527

Fringes for faculty salaries
 FICA @ 7.65%
 Retirement @ 11.86%
 Medical @ \$4,527

	\$0
	\$0
	\$0
	<u>\$0</u>

Total Positions Required		0.000
Instructional - Position Salary Rate		<u>\$80,189</u>
101-1310 Instructional Salary Amount		\$0
Other Academic Costs	44.89300%	<u>0</u>
Purpose 101 Total Academic Requirements		\$0
Purpose 151 Library	11.48462%	0
Purposes 152, 160, 170 180 General Instit Support	54.04980%	0
Neg Adj Factor	50.00000%	n/a
In-state SCHs	0	
Financial Aid (in-state)	67.99800%	<u>0</u>
Total Requirements		<u>\$0</u>

SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

Institution UNC Charlotte Date July 7, 2010
 Program (API#, Name, Level) 51.2706 Health Informatics
 Degree(s) to be Granted M.S. (Professional Science Master's) Program Year 2010-11

ADDITIONAL FUNDING REQUIRED - BY SOURCE

	Reallocation of Present Institutional Resources	Enrollment Increase Funds	Federal/State or Other Non-state Funds (Identify)	New Allocations	Total
101 Regular Term Instruction					
1210 SPA Regular Salaries	\$0				\$0
1110 EPA Non-teaching Salaries					0
1310 EPA Academic Salaries	10,000	0	0		10,000
Coordinator Stipend	10,000				
Graduate Teaching Assistants					
1810 Social Security	765		0		765
1820 State Retirement	0		0		0
1830 Medical Insurance (3432*X)	0				0
2000 Supplies and Materials	1,000				1,000
2300 Educational Supplies	500				500
2600 Office Supplies	500				500
3000 Current Services	2,000				2,000
3100 Travel	500				
3200 Communications	500				
3400 Printing & Binding	500				
3700 Advertising	500				
5000 Capital Outlay (Equipment)	0				0
5100 Office Equipment					
5200 EDP Equipment					
TOTAL Regular Term Instruction	\$13,765	\$0	\$0	\$0	\$13,765
151 Libraries					
5000 Capital Outlay (Equipment)	0	0			0
5600 Library Book/Journal					
TOTAL Libraries	\$0	\$0	\$0	\$0	\$0
189 General Institutional Support					
2000 Supplies and Materials					0
2600 Office Supplies					
3000 Current Services					0
3200 Communications					
3400 Printing & Binding					
5000 Capital Outlay (Equipment)					0
5100 Office Equipment					
5200 EDP Equipment					
TOTAL General Inst. Support	\$0	\$0	\$0	\$0	\$0
TOTAL ADDITIONAL COSTS	\$13,765	\$0	\$0	\$0	\$13,765

NOTE: Accounts may be added or deleted as required.

**Projected Funding for New Degree Program
Master of Science in Health Informatics
Regular Term 2011-12
(Based on 2010-2011 Change in Student Credit Hours)**

Program Category	Change in Student Credit Hours			Instructional - Position Funding Factors			Instructional Positions Required		
	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral
Category I				708.64	169.52	115.56	0.000	0.000	0.000
Category II				535.74	303.93	110.16	0.000	0.000	0.000
Category III		168*		406.24	186.23	109.86	0.000	0.000	0.000
Category IV				232.25	90.17	80.91	0.000	0.000	0.000

* No change in overall credit hours due to the presence of students in the Health Information Technology certificate program.

Fringe rates for staff
FICA @ 7.65%
Retirement @ 8.75%
Medical @ \$4,527

Fringes for faculty salaries
FICA @ 7.65%
Retirement @ 11.86%
Medical @ \$4,527

	\$0
	\$0
	\$0
	<u>\$0</u>

Total Positions Required		0.000
Instructional - Position Salary Rate		<u>\$80,189</u>
101-1310 Instructional Salary Amount		\$0
Other Academic Costs	44.89300%	<u>0</u>
Purpose 101 Total Academic Requirements		\$0
Purpose 151 Library	11.48462%	0
Purposes 152, 160, 170 180 General Instit Support	54.04980%	0
Neg Adj Factor	50.00000%	n/a
In-state SCHs	0	
Financial Aid (in-state)	67.99800%	<u>0</u>
Total Requirements		<u>\$0</u>

SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

Institution		UNC Charlotte		Date		July 7, 2010	
Program (API#, Name, Level)		51.2706 Health Informatics		Program Year		2011-12	
Degree(s) to be Granted		M.S. (Professional Science Master's)					
ADDITIONAL FUNDING REQUIRED - BY SOURCE							
	Reallocation of Present Institutional Resources	Enrollment Increase Funds	Federal/State or Other Non-state Funds (Identify)	New Allocations	Total		
101 Regular Term Instruction							
1210 SPA Regular Salaries							\$0
1110 EPA Non-teaching Salaries							0
1310 EPA Academic Salaries	0	0	0				0
1810 Social Security	0	0	0				0
1820 State Retirement	0	0	0				0
1830 Medical Insurance		0					0
2000 Supplies and Materials		0					0
2300 Educational Supplies							
2600 Office Supplies							
3000 Current Services		0					0
3100 Travel							
3200 Communications							
3400 Printing & Binding							
3700 Advertising							
5000 Capital Outlay (Equipment)		0					0
5100 Office Equipment							
5200 EDP Equipment							
TOTAL Regular Term Instruction	\$0	\$0	\$0	\$0	\$0	\$0	\$0
151 Libraries							
5000 Capital Outlay (Equipment)		0					0
5600 Library Book/Journal		0					0
TOTAL Libraries	\$0	\$0	\$0	\$0	\$0	\$0	\$0
189 General Institutional Support							
2000 Supplies and Materials		0					0
2600 Office Supplies		0					0
3000 Current Services		0					0
3200 Communications		0					0
3400 Printing & Binding		0					0
5000 Capital Outlay (Equipment)		0					0
5100 Office Equipment		0					0
5200 EDP Equipment		0					0
TOTAL General Inst. Support	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL ADDITIONAL COSTS	\$0	\$0	\$0	\$0	\$0	\$0	\$0

NOTE: Accounts may be added or deleted as required.

**Projected Funding for New Degree Program
 Master of Science in Health Informatics
 Regular Term 2012-2013
 (Based on 2011-2012 Change in Student Credit Hours)**

Program Category	Change in Student Credit Hours			Instructional - Position Funding Factors			Instructional Positions Required		
	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral
Category I				708.64	169.52	115.56	0.000	0.000	0.000
Category II				535.74	303.93	110.16	0.000	0.000	0.000
Category III		150		406.24	186.23	109.86	0.000	0.805	0.000
Category IV				232.25	90.17	80.91	0.000	0.000	0.000

Fringe rates for staff
 FICA @ 7.65%
 Retirement @ 8.75%
 Medical @ \$4,527

Fringes for faculty salaries
 FICA @ 7.65%
 Retirement @ 11.86%
 Medical @ \$4,527

	\$4,941
	\$7,660
	\$3,646
	<u>\$16,248</u>

Total Positions Required		0.805
Instructional - Position Salary Rate		\$80,189
101-1310 Instructional Salary Amount		\$64,589
Other Academic Costs	44.89300%	28,996
Purpose 101 Total Academic Requirements		\$93,585
Purpose 151 Library	11.48462%	10,748
Purposes 152, 160, 170 180 General Instit Support	54.04980%	50,582
Neg Adj Factor	50.00000%	n/a
In-state SCHs	0	
Financial Aid (in-state)	67.99800%	0
Total Requirements		\$154,915

SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

Institution UNC Charlotte Date July 7, 2010
 Program (API#, Name, Level) 51.2706 Health Informatics
 Degree(s) to be Granted M.S. (Professional Science Master's) Program Year 2012-13

ADDITIONAL FUNDING REQUIRED - BY SOURCE

	Reallocation of Present Institutional Resources	Enrollment Increase Funds	Federal/State or Other Non-state Funds (Identify)	New Allocations	Total
101 Regular Term Instruction					
1210 SPA Regular Salaries					\$0
1110 EPA Non-teaching Salaries					0
1310 EPA Academic Salaries	0	64,589	0		64,589
1810 Social Security	0	0	0		0
1820 State Retirement	0	7,660	0		7,660
1830 Medical Insurance		3,646			3,646
2000 Supplies and Materials		3,500			3,500
2300 Educational Supplies		2,500			
2600 Office Supplies		1,000			
3000 Current Services		5,000			5,000
3100 Travel		3,000			
3200 Communications		1,000			
3400 Printing & Binding		500			
3700 Advertising		500			
5000 Capital Outlay (Equipment)		9,189			9,189
5100 Office Equipment		1,189			
5200 EDP Equipment		8,000			
TOTAL Regular Term Instruction	\$0	\$93,585	\$0	\$0	\$93,585
151 Libraries					
5000 Capital Outlay (Equipment)		10,748			10,748
5600 Library Book/Journal		10,748			
TOTAL Libraries	\$0	\$10,748	\$0	\$0	\$10,748
189 General Institutional Support					
2000 Supplies and Materials		16,900			16,900
2600 Office Supplies		16,900			
3000 Current Services		16,900			16,900
3200 Communications		8,450			
3400 Printing & Binding		8,450			
5000 Capital Outlay (Equipment)		16,782			16,782
5100 Office Equipment		8,400			
5200 EDP Equipment		8,382			
TOTAL General Inst. Support	\$0	\$50,582	\$0	\$0	\$50,582
TOTAL ADDITIONAL COSTS	\$0	\$154,915	\$0	\$0	\$154,915

NOTE: Accounts may be added or deleted as required.

**Projected Funding for New Degree Program
 Master of Science in Health Informatics
 Regular Term 2013-2014
 (Based on 2012-2013 Change in Student Credit Hours)**

Program Category	Change in Student Credit Hours			Instructional - Position Funding Factors			Instructional Positions Required		
	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral
Category I				708.64	169.52	115.56	0.000	0.000	0.000
Category II				535.74	303.93	110.16	0.000	0.000	0.000
Category III		150		406.24	186.23	109.86	0.000	0.805	0.000
Category IV				232.25	90.17	80.91	0.000	0.000	0.000

Fringe rates for staff
 FICA @ 7.65%
 Retirement @ 8.75%
 Medical @ \$4,527

Fringes for faculty salaries
 FICA @ 7.65%
 Retirement @ 11.86%
 Medical @ \$4,527

	\$4,941
	\$7,660
	\$3,646
	<u>\$16,248</u>

Total Positions Required		0.805
Instructional - Position Salary Rate		\$80,189
101-1310 Instructional Salary Amount		\$64,589
Other Academic Costs	44.89300%	28,996
Purpose 101 Total Academic Requirements		\$93,585
Purpose 151 Library	11.48462%	10,748
Purposes 152, 160, 170 180 General Instit Support	54.04980%	50,582
Neg Adj Factor	50.00000%	n/a
In-state SCHs	0	
Financial Aid (in-state)	67.99800%	0
Total Requirements		\$154,915

SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

Institution		UNC Charlotte		Date		July 7, 2010	
Program (API#, Name, Level)		51.2706 Health Informatics		Program Year		2013-14	
Degree(s) to be Granted		M.S. (Professional Science Master's)		Program Year		2013-14	
ADDITIONAL FUNDING REQUIRED - BY SOURCE							
	Reallocation of Present Institutional Resources	Enrollment Increase Funds	Federal/State or Other Non-state Funds (Identify)	New Allocations	Total		
101 Regular Term Instruction							
1210 SPA Regular Salaries							\$0
1110 EPA Non-teaching Salaries							0
1310 EPA Academic Salaries	0	64,589	0				64,589
1810 Social Security	0	0	0				0
1820 State Retirement	0	7,660	0				7,660
1830 Medical Insurance		3,646					3,646
2000 Supplies and Materials		3,500					3,500
2300 Educational Supplies		2,500					
2600 Office Supplies		1,000					
3000 Current Services		5,000					5,000
3100 Travel		3,000					
3200 Communications		1,000					
3400 Printing & Binding		500					
3700 Advertising		500					
5000 Capital Outlay (Equipment)		9,189					9,189
5100 Office Equipment		1,189					
5200 EDP Equipment		8,000					
TOTAL Regular Term Instruction	\$0	\$93,585	\$0	\$0	\$0		\$93,585
151 Libraries							
5000 Capital Outlay (Equipment)		10,748					10,748
5600 Library Book/Journal		10,748					
TOTAL Libraries	\$0	\$10,748	\$0	\$0	\$0		\$10,748
189 General Institutional Support							
2000 Supplies and Materials		16,900					16,900
2600 Office Supplies		16,900					
3000 Current Services		16,900					16,900
3200 Communications		8,450					
3400 Printing & Binding		8,450					
5000 Capital Outlay (Equipment)		16,782					16,782
5100 Office Equipment		8,400					
5200 EDP Equipment		8,382					
TOTAL General Inst. Support	\$0	\$50,582	\$0	\$0	\$0		\$50,582
TOTAL ADDITIONAL COSTS	\$0	\$154,915	\$0	\$0	\$0		\$154,915

NOTE: Accounts may be added or deleted as required.