

Proposal for an Integrated Bachelor of Science in Nursing (BSN)

with an MS in Health Informatics

Indiana University School of Informatics and Computing at IUPUI

and

Indiana University School of Nursing

March 31, 2015

Indiana University School of Informatics and Computing at IUPUI

and

Indiana University School of Nursing

Signature Sheet

Degree Title: Existing Degrees: Bachelor of Science in Nursing (BSN)

with an MS in Health Informatics

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Signature of the Dean

Indiana University School of Nursing

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Date

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Signature of the Executive Associate Dean

Indiana University School of Informatics and Computing at IUPUI

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Date

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Dean of the Graduate School

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Date

\_\_\_\_\_  
Provost

\_\_\_\_\_  
Date

## Proposal Summary

The Indiana University School of Nursing and the School of Informatics and Computing at IUPUI, Department of BioHealth Informatics propose to combine existing Indiana University degrees programs in an efficient, integrated degree program in which students earn a Bachelor of Science in Nursing and a Master of Science in Health Informatics. By designing a seamless transition from the BS in Nursing to the MS in Health Informatics, it is expected that the program will graduate students who meet all of the requirements for both the BSN and MS degrees. The integrated degree program is also expected to enhance student recruitment and retention for both schools while leading to graduates with a skillset that is in high demand in today's healthcare marketplace. This degree combination addresses the increasing dependence of healthcare delivery on the use of health information technology (HIT) applications and electronic health records (EHRs). Professionals with the ability to retrieve, analyze, implement, and manage healthcare information and HIT applications are in high demand in current healthcare systems and a competitive asset to employers. Nurses are the largest and most influential healthcare working group that needs to be equipped with knowledge and skills to manage the increasing amount of data and information from HIT applications and EHRs. Similar programs integrating nursing and informatics curricula currently exist at competing institutions in the United States.

IUPUI's vision is to be one of the best urban universities, recognized locally, nationally, and internationally for its achievements—and already serves as Indiana's premiere urban research and academic health sciences campus. The campus' mission is to advance the State of Indiana and the intellectual growth of its citizens to the highest levels nationally and internationally through research and creative activity, teaching and learning, and civic engagement. With its strong commitment to teaching and research, IUPUI promotes the educational, cultural, and economic development of central Indiana and beyond, offering a distinctive range of bachelor's, master's, professional, and doctoral degrees.

This proposed collaboration meets many of the goals of the IUPUI Strategic Plan, including

1. **Promote Undergraduate Student Learning and Success:** *IUPUI will build on our existing strengths by enhancing collaboration among schools, academic, and non-academic units to align student success efforts; improving curricular and co-curricular coordination; supporting the engagement of all students in demonstrated high-impact teaching and learning practices; expanding academic support services; enhancing the overall student experience; and improving students' degree completion rates.*
2. **Optimize our Enrollment Management:** *IUPUI will create a strategic and coordinated enrollment management plan to attract, retain, and graduate better prepared, more diverse students who choose IUPUI first for its vibrant urban location, leading academic programs, and culture of learning in engagement with local, regional, national, and global communities.*
3. **Leverage our Strengths in Health and Life Sciences:** *IUPUI will assert its national leadership position in health and life sciences by offering programs of unsurpassed quality and scope; supporting effective teaching and learning, leading-edge research, and healthy patient outcomes; and emphasizing interprofessional education and practice.*

The Indiana University (IU) School of Informatics and Computing (SOIC) was the first school of informatics to be established in the United States. As similar programs arise, both within the U.S. and abroad, the IU School of Informatics and Computing is challenged to provide innovative strategies to meet the needs of the changing education consumer. As the first school of its kind in the United States, the Indiana University School of Informatics and Computing is an innovator in a fast-paced and dynamic field. The school uniquely integrates computing, social science, and information systems design to explore how people use computing and technology to live, work, play and communicate. The school then applies that insight to develop innovative IT solutions impacting fields like healthcare, biology, business, law, entertainment, and media. With nearly 2,000 students currently studying informatics on IU campuses, top-notch programs and highly-regarded faculty, the School of Informatics and Computing is dedicated to preparing students for the power and possibility of computing and information technology.

The Indiana University School of Nursing (IUSON), celebrating its 100<sup>th</sup> anniversary in 2014, is a large research intensive school offering a range of degrees from the baccalaureate in nursing (Traditional, Second Degree Accelerated, and RN to BSN tracks), nine master's degree tracks in nursing, the doctor of nursing practice (DNP), and the Doctor of Philosophy (PhD). Dually accredited by the Commission for Colleges of Nursing Education (CCNE) and the Accreditation Commission for Education in Nursing (ACEN), the IUSON has also been awarded the National League for Nursing Centers of Excellence in Nursing Education designations for Creating Environments that Promote the Pedagogical Expertise of Faculty and Creating Environments that Advance the Science of Nursing Education.

Consistent with IUPUI's vision and mission, as well as the vision for the respective schools, the proposed program will provide students with intensive education and experience. The primary benefit to students is the option to receive the BSN and MS in Health Informatics in a shorter time than it would take to pursue each separately. This application proposes an integrated curriculum plan for each option, including undergraduate and graduate level courses, which will aid the students in achieving the BSN program outcomes designed to prepare entry level nurses for contemporary nursing practice, as well as developing a frame of mind and a set of tools that enable them to apply fundamental informatics principles to solve problems in real-world advanced health application areas. Students who complete the program will have dual skillsets and credentials that will allow graduates to be able to contribute more quickly and effectively to their employer's mission. The integrated curriculum of the BSN and MS in Health Informatics programs has several salient features that are attractive to prospective students:

- Enhanced employment and career advancement opportunities
- Exceptional preparation for BSN practice
- Excellent preparation for Health Informatics practice with an application skillset
- Expected higher starting salary upon completion of the program
- Enhanced career growth opportunities in health care

The MS in Health Informatics enhances BSN competencies with those in the technologies and methodologies for processing and managing data, information, and knowledge in healthcare leading to the following careers: Biomedical Informatician, Clinical Applications Analyst, Clinical Data Analyst, Clinical Informatics Consultant, Clinician Leader, Health Information Exchange Specialist, Healthcare Analyst, Healthcare Informatician, Informatics Analyst, Information Systems Lead, Medical Informatician, Project Manager, and Research Informatics Associate.

Owing to its recognized ability to attract highly qualified students, the Indiana University School of Nursing (IUSON) and the Department of BioHealth Informatics expect to attract students who are ready to commit to a serious and intensive course of study. The schools expect the matriculation of these students will serve to enhance the quality of both the undergraduate and graduate degree programs in which they are enrolled. A sample program of study is included at the end of this document.

### **Degrees to Be Conferred**

BSN in Nursing and MS in Health Informatics. These two programs currently exist. Plans of study are available for both traditional and second-degree (accelerated) BSN students.

### **Rationale and Demand for this Integrated-Degree Program**

This integrated program plan for BSN and MS in Health informatics will provide a seamless integration of a broad nursing background in the BS program with a deeper application-level understanding from the MS coursework. This would make our graduates well-rounded *nurses and health informaticians*, essentially professionals with a sound nursing background as well as deeper knowledge on how to integrate data, information, and knowledge to support patients and other providers in their decision-making in all roles and settings that use health information. The proposed integrated BSN/Health Informatics degree program should attract both high quality students responding to the need to complete an Integrated BSN with an MS in Health Informatics while minimizing costs—attracting both residential students and students from out of state to this unique opportunity. The proposed program will benefit both of these student cohorts while minimizing the investment of time and financial resources necessary to fulfill the degree requirements.

### **Objectives of the Programs**

The proposed integrated degree program will provide intensive education and experience as well as opportunities for engagement in systems improvement initiatives to high quality students who are serious about committing to this unique program. The students will receive an Integrated BSN with MS in Health Informatics in a relatively shorter time period than it would take to pursue the degrees separately—and without dilution of the content of either program. The proposed program will help the IUSON and Department of BioHealth Informatics to recruit and retain superior students who will receive both a BSN in Nursing and an MS in Health Informatics in an efficient manner and a shorter time frame than required for separate course completion.

### **Proposed Program Structures**

**A. Admission requirement.** Students will be admitted to the IUSON under the guidelines that currently exist for admitting baccalaureate nursing students, either those on the accelerated second degree track or traditional track. This admission occurs prior to consideration for the integrated program being proposed. The courses that these BSN students will take will be identical to the required courses already in the program plan for the major and will not alter the order of courses. The students will be informed of the option to apply for the integrated degree program during their first semester of the nursing major and counseled appropriately should they wish to pursue it. The program is intended for those nursing students who demonstrate through their coursework the capacity succeed in this academically rigorous program. Only highly motivated students would be counseled to enter the program. Students interested in applying for the integrated degree program would do so following successful completion of one or two semesters of study in the nursing major, that is, after successful completion of NURS B260 Fundamentals of Nursing and B261 Pathophysiology and Pharmacology for Nursing Practice.

Nursing student candidates for admission to the graduate program in health informatics would be expected to have

1. A cumulative IU GPA of 3.5 on a 4.0 scale
2. A completed co-advising session with a nursing undergraduate advisor and informatics advisor
3. Demonstrated success in all completed nursing major courses to date
4. Successful application to the Graduate School Informatics program (March 15 and September 15 due dates annually). Admission is selective: the Graduate Admissions Committee evaluates applicants' abilities to succeed academically and their potential to contribute to the program.

**B. Degree Requirements.** The proposed curriculum plans include all the core undergraduate courses that are currently required for the BSN in Nursing and the graduate courses that are currently required for the MS in Health Informatics.

The integrated program is constructed to exploit an overlap economy, thereby reducing the number of required hours for completion. Students in the BSN must meet all of the existing degree requirements; all the policies regarding progression and graduation will remain exactly the same. Students in the MS in Health Informatics graduate program must maintain a minimum cumulative GPA of 3.0 and earn a minimum of a B– in every course in the graduate program. If a minimum grade is not earned in a course, that course must be retaken. Students may not take any informatics course using the Pass/Fail option. Graduate students may not replace a grade. If a course is repeated then both grades apply toward the cumulative GPA. Students in this program are placed on academic probation following a semester in which their graduate cumulative or semester grade-point average falls below 3.0. Students on probation are required to attain an average of at least 3.0 on all graduate coursework completed by the end of the next semester. Failure to do so is cause for dismissal from this program. Students in this program will also be held to the policies governing progression and graduation for the BSN: failure of an informatics course will not count as a nursing major course failure.

**C. Scope and Size of the Program.** The program should be attractive to nursing majors: there have been inquiries on using the graduate courses taken in students' senior years towards a Health Informatics

degree. During the initial years, it is expected that the program would attract at least five students per year for a period of four years. This will increase to ten students per year during the following years.

**D. Administrative Structure.** There will be separate plan of study for students in this program:

1. A BSN (track: Traditional Track BSN or Second-Degree Track BSN) Integrated with the MS in Health Informatics

The plan of study to be maintained is attached to this document, where the overlapping courses are indicated in both BSN and MS plans. A minimum GPA of 3.0 will be required in the MS plan of study for graduation as in the traditional Master's program. Master's GPA will be calculated by including the grades of the two graduate courses undertaken as part of the BSN plan of study. The graduate program will offer thesis and non-thesis options. Depending on the nature of the research, in some cases the thesis option may require an additional semester to finish. Thesis committees will consist of at least three members from the Health Informatics program. The Graduate Committee will review each student's performance each semester after they are conditionally admitted to the program.

Following the conditional admission, the student's performance will be assessed by the Graduate Admissions Committee at the end of each semester to ensure that the student's performance is at the level expected for traditional MS students in the Health Informatics graduate program and the grades in each Master's course are B or higher.

Students will receive the BSN at the completion of the degree requirements for the BSN. If the student's performance is judged by the Graduate Committee to be unsatisfactory for the integrated degree program in that the minimum grade requirements (minimum 3.00 GPA and minimum B grade in any of the first two graduate courses taken) are not met, the student's standing in the BSN will not be affected, provided all the requirements for the BSN are satisfactorily met.

This degree program will be limited to students achieving the BSN on the IUPUI campus at this time.

**Plan of Study Traditional Track BSN and MS in Health Informatics**

<b>Traditional Track IUSON BSN Major: Sophomore year</b> (Note: Freshman prerequisites are not included in this table but are the same as for any BSN student.)			
<b>Semester 3</b>	<b>Credits</b>	<b>Semester 4</b>	<b>Credits</b>
BIOL N217 Human Physiology	5	MICR J210 Microbiology and Immunology	4
NURS B244/245 Health Assessment with lab/clinical	4 (2/2)	NURS B260 Fundamentals of Nursing with lab/clinical	5 (3/2)
NURS B234/235 Promoting Healthy Populations, practicum	5 (3/2)	NURS B261 Pathophysiology and Pharmacology for Nursing Practice	4
NURS B253 Professionalism in Collaborative Practice	3	NURS L230 Health Care Delivery Systems	3
<b>5 gen ed. and 12 nursing credits</b>	<b>17</b>	<b>4 gen ed. and 12 nursing credits</b>	<b>16</b>
<b>Traditional Track IUSON BSN Major: Junior Year</b>			
<b>Semester 5</b>	<b>Credits</b>	<b>Semester 6</b>	<b>Credits</b>
<b>INFO 530 Foundations of Health Informatics [F]</b>	3	NURS H360 Clinical Care II: Interactive Processes	5 (3/2)
NURS H356 Clinical Nursing Care I: Biophysical Processes	5 (3/2)	NURS H371 Clinical Care III: Adaptive Processes	5 (3/2)
NURS H355 Data Analysis in Clinical Practice and Healthcare Research	3	NURS R375 Nursing Research and Evidence Based Practice	3
NURS B334 Transitional Care of Families and Populations	5 (3/2)	<b>INFO B501 (or H501) Introduction to Informatics [F/S]</b>	3
<b>3 cr. health informatics and 13 cr. nursing – Student may apply for the MS program this semester.</b>	<b>16</b>	<b>3 cr. health informatics and 13 cr. nursing</b>	<b>16</b>
<b>Traditional Track IUSON BSN Major: Summer Prior to Senior Year</b>			
<b>Health Informatics Elective</b>	<b>3</b>		
<b>Traditional Track IUSON BSN Major: Senior Year</b>			
<b>Semester 7</b>	<b>Credits</b>	<b>Semester 8</b>	<b>Credits</b>
NURS S474 Applied Health Care Ethics	3	NURS S488 Nursing Synthesis	3
NURS H476 Clinical Care IV: Complex Processes	5 (3/2)	NURS S483 Clinical Nursing Practice Capstone	3
NURS L430 Leadership in Healthcare: Delivery and Policy	5 (3/2)	NURS B453 Interprofessional Practice	3 (1/2)
<b>INFO B535 Clinical Information Systems [F/S]</b>	3	NURS B444 Nursing Intensive: Managing Health and Illness Across Care Environments	4 (2/2)
		<b>INFO B581 Health Informatics Standards and Terminology [S]</b>	3
<b>3 cr. health informatics and 13 nursing</b>	<b>16</b>	<b>3 cr. health informatics and 16 nursing</b>	<b>16</b>
<b>BSN Degree Conferred; student has completed 15 credits toward MS in Health Informatics</b>			
<b>MS in Health Informatics (21 credits remaining)</b>			
<b>INFO B505 Informatics Project Management [F] (project track) or INFO I575 Informatics Research Design [F/S] (thesis track)</b>	3	<b>INFO B691 Project in Health Informatics [F/S] (project track) or INFO B691 Thesis in Health Informatics [F/S] (thesis track)</b>	3
<b>Health Informatics elective (project track) or PBHL B651 Introduction to Biostatistics [F] (thesis track)</b>	3	<b>INFO B583 Security and Privacy Policies [S] (project track) or Health Informatics elective (thesis track)</b>	3
<b>Health Informatics elective</b>	3	<b>INFO B642 Clinical Decision Support [S]</b>	3
<b>Health Informatics elective</b>	3		
<b>12 cr. health informatics</b>	<b>12</b>	<b>9 cr. health informatics</b>	<b>9</b>
<b>MS in Health Informatics Conferred</b>			



**Plan of Study Second-Degree Track BSN & MS in Health Informatics**

<b>Second Degree Track IUSON BSN</b>			
<b>Semester 1 (fall and spring)</b>	<b>Credits</b>	<b>Semester 2 (spring and summer)</b>	<b>Credits</b>
B261 Pathophysiology and Pharmacology for Nursing Practice	4	B253 Professionalism in Collaborative Practice	3
B244/245 Health Assessment	4	H356 Clinical Care I: Biophysical Processes	5
B260 Fundamentals of Nursing Practice	5	B234/235 Promoting Healthy Populations	4
L230 Health Care Delivery Systems	3	B334 Transitional Care of Families & Populations	5
Credits:	<b>16</b>	Credits: <i>student may apply for the MS in Health Informatics during this semester.</i>	<b>17</b>
<b>Second Degree Track IUSON BSN</b>			
<b>Semester 3 (summer and fall)</b>	<b>Credits</b>	<b>Semester 4 (fall and spring)</b>	<b>Credits</b>
H360 Clinical Care II: Interactive Processes	5	H476 Clinical Care IV: Complex Processes	5
H371 Clinical Care III: Adaptive Processes	5	R500 Nursing Research Methods I (graduate core course) <b>equivalent to INFO I575</b>	3
R505 Measurement and Data Analysis (graduate core course)/ <b>equivalent to PBH 651</b>	3	S474 Healthcare Ethics	3
		B453 Inter-Professional Practice	3
Credits	<b>13</b>	Credits	<b>14</b>
<b>Second Degree Track IUSON BSN &amp; MS in Health Informatics</b>			
<b>Semester 5 (spring and summer)</b>	<b>Credits</b>	<b>Semester 6 post BSN (summer and fall)</b>	<b>Credits</b>
L430 Leadership in Healthcare Delivery & Policy	3	<b>INFO B501 Introduction to Informatics [F/S]</b>	3
S483 Nursing Practice Capstone	3	<b>INFO B530 Foundations of Health Informatics [F]</b>	3
S488 Nursing Synthesis	2	<b>INFO B505 Informatics Project Management [F]</b> (project track) or <b>INFO I575 Informatics Research Design [F/S]</b> (thesis track)	3
<b>INFO B535 Clinical Information Systems [F/S]</b>	3		
B444 Nursing Intensive: Managing Health & Illness Across Care Environments	4		
Credits	<b>15</b>	Credits	<b>9</b>
<b>BSN Degree Conferred (following Semester 5)</b>			
<b>Semester 7 (spring)</b>	<b>Credits</b>	<b>Semester 8 (fall)</b>	<b>Credits</b>
<b>INFO B581 Health Informatics Standards and Terminology [S]</b>	3	<b>INFO B691 Project in Health Informatics [F/S]</b> (project track) or <b>INFO B691 Thesis in Health Informatics [F/S]</b> (thesis track)	3
<b>INFO B583 Security and Privacy Policies [S]</b> (project track) or <b>Health Informatics elective</b> (thesis track)	3	<b>Health Informatics elective</b>	3
<b>INFO B642 Clinical Decision Support [S]</b>	3	<b>Health Informatics elective</b>	3
Credits	<b>9</b>	Credits	<b>9</b>
<b>MS in Health Informatics Conferred</b>			

### **Sustainability and Impact on the State and Region**

The key to the success of the program is to make students (prospective students) aware of the availability of the program when they enter the undergraduate nursing program. The seamless transition from undergraduate to graduate program will greatly reduce the time needed to complete an Integrated BSN with MS in Health Informatics when compared with traditional, separate BS and MS degree programs. This proposed program is, therefore, economical and sustainable in the long run.

As our city, state, and nation move towards a technology-based, high-tech economy, we continue to see a critical need for well-educated, trained, high quality health informaticians with advanced graduate degrees. We fully expect program graduates with advanced degrees to have a major impact on central Indiana, the state of Indiana, and the greater Midwest.

**Staffing and Infrastructure.** Because the program uses existing courses, faculty, and facilities, the proposed program requires no additional resources and financial support from the schools and campus.