The effective delivery of medical care increasingly requires information technology to harness and systemize this storehouse of knowledge. Through the emerging field of health care informatics, scattered ports of information are pulled together to expedite more comprehensive, accurate care.

As an informatics professional, you can become an architect of the very future of the industry. In simplified terms, health care informatics brings computer science and knowledge management into day-to-day patient care. Its sole purpose is to automate, organize and improve the transmission of information to support the delivery of health care. Informatics enables doctors and nurses to computerize and centralize their patient records, lab technicians to send electronic test results immediately, pharmacists to view a patient’s entire prescription catalog, and much more. The end goal is to improve medical care by increasing speed and accuracy while reducing errors and costs.

Recent changes in the health care industry call for clinicians, administrators and executive leaders who can mobilize innovative technologies. However, there is a critical shortage of qualified professionals capable of applying these technologies and communicating effectively with both health care providers and IT professionals.

With a graduate certificate program and two master’s degrees in Health Care Informatics, the Hahn School of Nursing and Health Science is prepared to address that shortage. Registered Nurses who complete the certificate and/or the master’s programs are eligible to seek certification as nursing informaticists through the American Nurses Credentialing Center (ANCC). Both nursing and non-nursing graduates are prepared for certification through the Healthcare Information and Management Systems Society (HIMSS).

**Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCIN 540</td>
<td>Introduction to Health Care Information Management</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 542</td>
<td>Systems Analysis and Design for Health Care Informatics</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 543</td>
<td>Database Design and Knowledge Management</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 544</td>
<td>Advanced Health Care Information Management</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 545</td>
<td>Practicum for Health Care and Nursing Informatics</td>
<td>4</td>
</tr>
<tr>
<td>HCIN 547</td>
<td>Health Care Analytics</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 548</td>
<td>Health Care Informatics Seminar</td>
<td>2</td>
</tr>
<tr>
<td>HCIN 549</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 552</td>
<td>Clinical Documentation: Electronic Medical Record Systems</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 556</td>
<td>Health Care Leadership, Values and Social Justice</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 557</td>
<td>Financial Management in Health Care Systems</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 558</td>
<td>Strategic Planning and Management of Health Systems</td>
<td>3</td>
</tr>
<tr>
<td>HCIN 559</td>
<td>Management of Health Care System Quality Outcomes and Patient Safety</td>
<td>3</td>
</tr>
<tr>
<td>MSNC 511</td>
<td>Evidence Based Practice: Role of Theory and Research</td>
<td>3</td>
</tr>
<tr>
<td>MSNC 512</td>
<td>Influencing the Health Care Environment: Policy and Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Units:** 45
ENLC 556 | MANAGEMENT OF HEALTH CARE SYSTEM QUALITY OUTCOMES AND PATIENT SAFETY
Units: 3  Repeatability: No
Focuses on the evaluation of patient safety and quality of care outcomes from a systems perspective. Explores theoretical and methodological foundations for understanding and applying patient safety and quality of care outcomes within the current health care environment. Reviews safety applications in other high-risk industries with application to nursing and the health care industry. Emphasizes identification, implementation, and evaluation of quality indicators for patient safety and other patient outcomes. Evaluates patient safety and quality indicators for their sensitivity and specificity to clinical care. Addresses the role of leadership in error prevention and maintenance of a culture of patient safety.

ENLC 557 | STRATEGIC PLANNING AND MANAGEMENT OF HEALTH SYSTEMS
Units: 3  Repeatability: No
Emphasizes strategic planning and management as requisite to growth and survival of health care systems. Acquaints students with the language, processes, tools and techniques of strategic planning and marketing that will enable them to contribute effectively to strategic thinking and action in health care systems.

ENLC 591 | LEADERSHIP PRACTICUM IN HEALTH CARE SYSTEMS
Units: 3  Repeatability: No
Under the guidance of a healthcare manager, administrator, or executive preceptor in health system the student will have an opportunity to observe and participate in various situations associated with the healthcare system administrative process (e.g. human resource management, fiscal management, strategic planning, marketing, information management, and/or political activity). Seminars will provide a forum for discussion of operational and clinical observations as they relate to empirical and evidence-based literature as well as issues and trends in healthcare systems administration.

ENLC 598 | EVIDENCE-BASED PRACTICE CAPSTONE
Units: 3
Provides a self-directed and systematic opportunity to gain greater knowledge and expertise in an area of nursing practice. Involves development of direct or indirect nursing roles in a health care or community service agency. The practicum consists of completion of an evidence-based practice project to address a nursing practice problem; implementation of an innovative approach to the problem through integration of related theory and best evidence; evaluation of project outcomes; and dissemination of findings.

HCIN 501 | HCI NEW STUDENT ORIENTATION
Units: 0  Repeatability: Yes (Can be repeated for Credit)
Master orientation course. Online HCI students only.

HCIN 540 | INTRODUCTION TO HEALTH CARE INFORMATION MANAGEMENT
Units: 3  Repeatability: No
Provides students with necessary skills to understand the basis for health care informatics. Emphasizes basic understanding of computer hardware, network architecture, clinical application of electronic health records, and health care software applications. Includes relevant regulatory, patient privacy, security and reimbursement issues. Examines current trends in meaningful use and electronic health record (EHR) certification as a foundation for understanding emerging issues in health care informatics.

HCIN 541 | INTRODUCTION TO HEALTH CARE DELIVERY SYSTEMS
Units: 3  Repeatability: No
Provides an overview of the health care delivery system, professional roles, care delivery models, and relevant regulatory environment in the United States. Overviews common chronic and acute disease states that drive the U.S. health care system to provide the student with context for care delivery models. Intended for non-clinician students or individuals who lack significant professional health.

HCIN 542 | SYSTEMS ANALYSIS AND DESIGN FOR HEALTH CARE INFORMATICS
Units: 3  Repeatability: No
Prerequisites: HCIN 540 (Can be taken Concurrently) and HCIN 541 (Can be taken Concurrently)
Prepares students in the planning, analysis, design, and implementation of computer-based information and technology systems. Includes systems development life cycle, project management skills, requirement analysis and specification, feasibility and cost-benefit analysis, logical and physical design, prototyping, system validation, deployment, human factors, and post-implementation review.

HCIN 543 | DATABASE DESIGN AND KNOWLEDGE MANAGEMENT
Units: 3  Repeatability: No
Prerequisites: HCIN 540 and HCIN 541
Provides opportunities to gain advanced skills in data and knowledge management. Addresses applied skills in database design, data structure, modeling, and development of database management systems to resolve problems in health care informatics and research settings. Also focuses on development of fundamental skills in knowledge management and knowledge engineering as applied to the health care environment. Provides an overview of national health care databases such as National Database of Nursing Quality Indicators (NDNQI) and Centers for Medicare and Medical Services (CMS) Core measures and data mining techniques. Promotes skills in accessing clinical databases to resolve selected clinical problems.

HCIN 544 | ADVANCED HEALTH CARE INFORMATION MANAGEMENT
Units: 3  Repeatability: No
Prerequisites: HCIN 540 and HCIN 541 and HCIN 542 and HCIN 543 (Can be taken Concurrently) and HCIN 545 (Can be taken Concurrently)
Provides information and skills necessary for leadership in informatics roles in health care systems. Emphasizes design, implementation, and evaluation of electronic health record systems and clinical decision support systems. Also addresses regulatory, reimbursement, ethical issues, and emerging technology in health care informatics.

HCIN 545 | RESIDENCY IN HEALTH CARE INFORMATICS CAPSTONE
Units: 3  Repeatability: Yes (Can be repeated for Credit)
Prerequisites: HCIN 540 and HCIN 542 and HCIN 543 and HCIN 544
Provides an integrative field experience to synthesize and apply knowledge attained in the HCIN core courses. Includes related practices and seminar experiences that foster achievement of career goals related to health care informatics.

HCIN 546 | CAPSTONE
Units: 1  Repeatability: No
This is the final course in the online Health Care Informatics program sequence and is given during the final 14-week semester of the degree program. The purpose of this course is to thread program concepts, skills, and knowledge developed throughout the program into a culminating capstone experience.

HCIN 547 | HEALTH CARE ANALYTICS
Units: 3  Repeatability: No
Prerequisites: HCIN 541 and HCIN 542 and HCIN 543 and HCIN 549 and HCIN 552
Prepares students to apply various types of clinical data to solve complex clinical questions based on prior knowledge achieved in the Health Care Informatics program. Students apply an evidence-based practice approach to solve various clinical questions using a variety of clinical data sets including population level data. Course focus includes how data can be leveraged to solve specific clinical questions, the development of Clinical Decision support rules, and Precision Medicine applications. Students will develop data analytics skills by utilizing real-world use cases found in the clinical setting.
HCIN 548 | HEALTH CARE INFORMATICS SEMINAR
Units: 2 Repeatability: Yes (Can be repeated for Credit)
The HCI seminar course provides the student with the opportunity to work collaboratively with faculty and student colleagues to address concepts and ideas emerging in the field of Health Care Informatics. Each seminar focuses on various aspects of the Clinical Informaticist Health Care Data Analyst and Health Care Informatics Leader role. Throughout the seminar course, students will use various methods to analyze emerging trends in health care and informatics. Seminar students will generate self-reflective and field-relevant capstone projects. Students will fulfill program competencies through individual projects.

HCIN 549 | BIOSTATISTICS
Units: 3 Repeatability: No
The HCI seminar course provides the student with the opportunity to work collaboratively with faculty and student colleagues to address concepts and ideas emerging in the field of Health Care Informatics. Each seminar focuses on various aspects of the Clinical Informaticist Health Care Data Analyst and Health Care Informatics Leader role. Throughout the seminar course, students will use various methods to analyze emerging trends in health care and informatics. Seminar students will generate self-reflective and field-relevant capstone projects. Students will fulfill program competencies through individual projects.

HCIN 550 | HEALTH CARE SIX SIGMA, GREEN BELT
Units: 3
Employs the structured Six Sigma “DMAIC” methodology: Define, Measure, Analyze, Improve, and Control to introduce principles, tools, and techniques to improve processes within a health care organization. Enables students to apply the Six Sigma model to improve such systems as: patient throughput, clinical diagnostics reporting, and care delivery redesign. Defines tools and techniques of Six Sigma in order to successfully develop, launch, and transition a project through each phase terminating with an evaluation phase.

HCIN 551 | INTRODUCTION TO GEOHEALTH
Units: 3
Enhances the student’s familiarity and builds competence in using geographic information systems (GIS) applied to health surveillance and research. Provides the student interactive experiences to map clinic data and to conduct geographic modeling decisions. Incorporates an active learning environment to provide students an opportunity to develop a practical understanding of GIS software.

HCIN 552 | CLINICAL DOCUMENTATION: ELECTRONIC MEDICAL RECORD SYSTEMS
Units: 3 Repeatability: No
Clinical documentation: Electronic systems explore hardware/software development requirements for EMRs and application of EMR data for: quality, risk assessment, billing, and research applications. Includes overview of clinical devices that assist in medication administration such as BCMA (Bar Code Medication Administration). Applies problem-based learning to the development of clinical rules and alert systems for both Clinical Decision Support (CDS) and CPOE (computerized Physician Order entry) systems. Course emphasizes regulatory requirements for electronic medical records to include: HIPAA, Meaningful Use Requirements, security applications, and federal breach reporting.

HCIN 553 | CLINICAL DOCUMENTATION SYSTEMS: SPECIALIST ROLE
Units: 3
Provide a basic understanding of the electronic medical record and how digital billing systems are evolving to meet the clinical documentation needs of health care organizations. Fosters skills in applying diagnostic coding standards to meet quality, regulatory and billing requirements, including: code book formats; coding techniques; formats of the ICD, DRG, and CPT manuals; health insurance; billing, reimbursement, and collections. Course examines federal regulations covering billing and patient privacy (HIPPA).

HCIN 554 | TELEHEALTH & EMERGING TECH
Units: 3 Repeatability: No
Provides an introduction to the emerging discipline of telehealth. Provides a historical perspective of remote monitoring of patients using various types of telehealth, including video conferencing, telephonic, and home-based sensors. Includes an overview of relevant hardware and software requirements for a telehealth program. Includes federal and state regulations covering telehealth practice and reimbursement models by Medicare, Medicaid, and other insurers. Includes consumer-grade health monitoring devices and emerging health care technology.

HCIN 555 | HEALTH CARE SIX SIGMA, BLACK BELT
Units: 3 Repeatability: No
Prerequisites: HCIN 550
This is the second course in the Health Care Six Sigma Course Series. Builds upon skills and knowledge acquired during the Six Sigma Green Belt course. Develops team leadership knowledge and applied skills using the quality and performance improvement methodology, “DMAIC” model (Define, Measure, Analyze, Improve, and Control) applied to an actual health care project.

HCIN 556 | HEALTH CARE LEADERSHIP, VALUES AND SOCIAL JUSTICE
Units: 3 Repeatability: No
This course develops knowledge and hones skills concerning the management of people in healthcare organizations. It examines issues critical to being an effective leader with an emphasis on practical application. These issues include: leadership, motivation, effective team functioning, power and influence, corporate ethics, principles of social and health care justice, building and enabling high quality relationships and organizational structure. Students will improve abilities to diagnose, analyze, and take effective action as leaders in the healthcare arena.

HCIN 557 | FINANCIAL MANAGEMENT IN HEALTH CARE SYSTEMS
Units: 3 Repeatability: No
Provides a forum for the exploration and evaluation of the financial environment of the health care industry and how it specifically affects the role of the health care leader. Emphasizes the development of financial analysis skills that provides a foundation for application within the health care delivery system.

HCIN 558 | STRATEGIC PLANNING AND MANAGEMENT OF HEALTH SYSTEMS
Units: 3 Repeatability: No
This course emphasizes strategic planning and management as requisite to growth and survival of health systems. It also acquaints students with the language, processes, tools and techniques of strategic planning and change management that will enable them to contribute effectively to strategic thinking and action in health systems.

HCIN 559 | MANAGEMENT OF HEALTH CARE SYSTEM QUALITY OUTCOMES AND PATIENT SAFETY
Units: 3 Repeatability: No
Focuses on the evaluation of patient safety and quality of care outcomes from a systems perspective. Explores theoretical and methodological foundations for understanding and applying patient safety and quality of care outcomes within the current health care environment. Reviews safety applications in other high-risk industries with application to nursing and the healthcare industry. Emphasizes identification, implementation, and evaluation of quality indicators for patient safety and other patient outcomes. Evaluates patient safety and quality indicators for their sensitivity and specificity to clinical care. Addresses the role of leadership in error prevention and maintenance of a culture of patient safety.
HCIN 560 | INTRODUCTION TO HEALTHCARE SIMULATION  
Units: 3  Repeatability: No  
Provides an overview of the fundamentals and exploration of health care simulation concepts. Innovative teaching strategies and technology are presented including opportunities to gain "hands-on" experience using multiple simulation methods such as task trainers, hi and lo-fidelity mannequins, and standardized patients within active learning scenarios. Emphasizes basic understanding of entire continuum of planning, executing, and debriefing a successful simulation incorporating creation of cases, resource planning, event management, development of competency checklists, and facilitation of reflective learning.

HCIN 600 | POPULATION HEALTH ANALYTICS  
Units: 3  Repeatability: No  
Prerequisites: HCIN 540 and HCIN 542 (Can be taken Concurrently) and HCIN 543 (Can be taken Concurrently) and HCIN 549 and HCIN 552  
This course explores methods for measuring and analyzing the burden of disease in populations. Students will apply various data sets including disease registries, electronic health records, claims data, and socio-economic data; to measure, trend, and analyze, the impact of disease on various populations.

HCIN 605 | DATA STRUCTURES AND TERMINOLOGIES  
Units: 2  Repeatability: No  
This course provides the Health Care Analytics, Data Science, Doctoral Nursing and Informatics student a review of health care standards, terminologies, and quality outcome measure data. Students will examine how these are applied to document, measure, evaluate, and reimburse health care in the United States. This includes standards and terminologies common to Electronic Health records to include the following: The International Classification of Diseases (ICD), Current Procedural Terminology (CPT) code sets, Health Level Seven (HL7) Reference Information Model, Systematized Nomenclature of Medicine (SNOMED), Logical Observation Identifiers, Names, and Codes (LOINC), and RadLex, Standards, terminologies, and outcome measures unique to medicine, Nursing, Allied Health Professionals and Health Care delivery organizations (such as hospitals, clinics, and medical provider practices) is included.

HCIN 610 | ADVANCED LEADERSHIP AND HEALTH SYSTEMS MANAGEMENT  
Units: 3  Repeatability: No  
This course explores theoretical and applied principles of leadership in complex health care delivery systems. Students will explore health care organizations to determine how leadership, technology, and system complexity affects care delivery. Students will examine how learning health care systems management differs from traditional systems management and the benefits they offer to complex delivery systems.

HCIN 611 | HEALTH CARE ECONOMICS  
Units: 3  Repeatability: No  
This course analyzes the Health Care industry and public health systems in the United States. Students will evaluate the impact of both private and public sectors of the health care industry and the impact of competing goals of: broad access, high quality, and affordability. This course will also examine the way consumers and providers affect the availability and quality of health care. Additional course topics include: supply and demand modeling; cost-benefit analysis; reimbursement models including pay for performance; global drivers on the US healthcare industry and implications of policy, regulatory and political philosophy regarding care.

HCIN 615 | ADVANCED HEALTH CARE ANALYSIS  
Units: 3  Repeatability: No  
Prerequisites: HCIN 540 and HCIN 542 (Can be taken Concurrently) and HCIN 543 (Can be taken Concurrently) and HCIN 547 and HCIN 549 and HCIN 552 and HCIN 600  
This course will explore methods and tools to address a variety of health care issues by leveraging data to design, solve, and test a data-driven hypothesis. This course will explore the application of quantitative and qualitative data to evaluate programs and research studies. Students will also examine data stewardship and data governance roles in organizations that employ enterprise data warehouses (EDW). Data security and privacy are examined from the health care data analyst role. Additional course topics include emerging trends in health care, data science, and bioinformatics.

HCIN 620 | MACHINE LEARNING APPLICATIONS FOR HEALTH CARE  
Units: 3  Repeatability: No  
Prerequisites: HCIN 540 and HCIN 541 and HCIN 542 (Can be taken Concurrently) and HCIN 543 (Can be taken Concurrently) and HCIN 547 and HCIN 549 and HCIN 615  
This course will explore the application of machine learning (ML) to the health care setting. ML is a field of computer science that trains computers to recognize patterns in complex data sets and formulate predictions based upon designed algorithms. ML can be used to predict hospital readmission, identify patients who may develop hospital acquired infections, and support diagnostic reasoning for clinicians. The course will explore various ML methods to design algorithms for solving common clinical problems. In addition, students will gain a basic understanding of how ML methods can learn from data to find underlying patterns useful for prediction, classification, clustering, and exploratory data analysis.

HCIN 625 | DIGITAL HEALTH CARE MARKETING  
Units: 3  Repeatability: No  
Prerequisites: HCIN 540 and HCIN 541  
This course will explore marketing principles and methods utilized in the health care industry from the perspective of a health care leader. Students will learn how to assess market needs for health care organizations and service lines. Course will include case studies to understand ethical, regulatory, and liability issues in health care marketing. Additional course topics include web-based advertising, management of marketing staff, and website design.

HCIN 630 | HEALTH CARE LAW AND RISK MANAGEMENT  
Units: 3  Repeatability: No  
This course explores laws encountered by health care managers and strategies to reduce liability to health care organizations. Case studies will assist the Student to examine legal and ethical issues encountered when managing health care delivery systems. This course will examine laws and regulations that govern the relationships between health care providers and entities, the management of employees and medical staff who deliver patient care, labor relations, the management of information, patient rights and responsibilities, and tort law. Students will research an area of health care liability and develop a plan to mitigate risk in the health care setting.

HCIN U540 | INTRODUCTION TO HEALTH CARE INFORMATION MANAGEMENT  
Units: 3  
Provides students with necessary skills to understand the basis for health care informatics. Emphasizes basic understanding of computer hardware, network architecture, clinical application of electronic health records, and health care software applications. Includes relevant regulatory, patient privacy, security and reimbursement issues. Examines current trends in meaningful use and electronic health record (EHR) certification as a foundation for understanding emerging issues in health care informatics.
MSNC 503 | NURSING PRACTICE WITH DIVERSE FAMILIES IN COMMUNITIES
Units: 2
Corequisites: MSNE 546
Examines philosophical, theoretical, and conceptual bases for care of diverse families and groups in community settings. Analysis of community perspectives provides a foundation for general and advanced practice and research with families across the lifespan. The national health objectives provide a framework for family and community health promotion and risk reduction. Issues that affect family, aggregate, and community health and wellness are examined using an ecological perspective that includes social, political, cultural, and economic aspects of the environment. Addresses intervention strategies with families to achieve desired health outcomes in their community.

MSNC 507 | STATISTICS
Units: 3
Repeatability: No
Provides students with necessary skills to perform statistical analysis of data in order to present information in a meaningful way. Emphasizes basic understanding of probability concepts, common probability distributions, and inferential statistical methods. Includes identification of data requirements and statistical method to answer specific research questions. Incorporates SPSS statistical software as well as statistical calculations. Explores methods to display data and findings. Assists students to interpret SPSS output, and effectively present findings. Also focuses on critical review of scientific manuscripts and interpretation of findings.

MSNC 511 | EVIDENCE BASED PRACTICE: ROLE OF THEORY AND RESEARCH
Units: 3
Repeatability: No
Focuses on the critical links between nursing theory, research and evidence based practice. Examines the theoretical foundations of nursing science including how theory has influenced the history and current practice of nursing. Emphasizes the importance of research for building an evidence base for nursing practice. Reviews the components of evidence-based practice, with emphasis placed on knowledgeable appraisal of theory and research to evaluate the evidence base for clinical practice.

MSNC 512 | INFLUENCING THE HEALTH CARE ENVIRONMENT: POLICY AND SYSTEMS
Units: 3
Provides an understanding of nursing’s leadership role in the analysis and evaluation of policy, organization, and financing of health care. Focuses on the organization of health care systems, the political and economic forces that influence health care delivery, and the formulation of policies affecting health care.

MSNC 518 | PHYSICAL ASSESSMENT AND DIAGNOSIS FOR RNS
Units: 4
Prerequisites: APNC 520
Corequisites: MSNC 518L
Focuses on theoretical and clinical skill development in physical assessment and diagnosis, across the life span. Designed to prepare the advanced generalist registered nurses with the knowledge and skills to make appropriate focused assessments and draw accurate conclusions about physiological/psychosocial instability/complications/sequela of disease processes and/or therapeutic interventions.

MSNC 518L | PHYSICAL ASSESSMENT AND DIAGNOSIS FOR RNS LAB
Units: 0
Corequisites: MSNC 518

MSNC 534 | CLINICAL NURSE LEADERSHIP
Units: 6
Explores and integrates concepts of leadership that are central to the practice of the clinical nurse leader (CNL) including: horizontal leadership, effective use of self, reflective practice, advocacy, lateral integration of care, change theory, and role analysis and implementation. Oversees patient care provided by staff, in collaboration with RN preceptor or mentor, to improve patient outcomes. Serves as a role model for staff in anticipating risks and providing comprehensive care to individuals and clinical cohorts. Reviews and modifies, if necessary, standards of care for specific patient populations. Designs and proposes an implementation and evaluation plan for an evidence-based project designed to effect change in patient/staff outcomes.

MSNC 534P | CLINICAL NURSE LEADER PRACTICUM II
Units: 3

MSNC 599 | INDEPENDENT STUDY
Units: 6