HEALTH CARE INFORMATICS (HCIN)

HCIN 500A | CAPSTONE FUNDAMENTALS
Units: 0 Repeatability: No
Capstone Fundamentals HCIN 500A, provides enrolled students with opportunities to explore a topical survey of current Health Information Technology (HIT) trends that may include critical background contributing to the selection of a topic and development of their individual CPP.

HCIN 500B | CAPSTONE DISCOVERY
Units: 0 Repeatability: No
Prerequisites: HCIN 500A with a minimum grade of P
Capstone Discovery HCIN 500B, provides enrolled students with opportunities to explore principles of project management (PM), data development, and effective visuals that may assist in the further development of their individual CPP topic.

HCIN 500C | CAPSTONE DEVELOPMENT
Units: 0 Repeatability: No
Prerequisites: HCIN 500B with a minimum grade of P
Capstone Development HCIN 500C, provides enrolled students with opportunities to develop collaboration and buy-in, market context and alignment, and expand their understanding of impact to the portfolio that will arise from their individual CPP.

HCIN 501 | HCI NEW STUDENT ORIENTATION
Units: 0 Repeatability: No
This orientation course introduces students to the University of San Diego and provides important information about the program. Throughout the orientation, students will learn to successfully navigate through the online learning environment and locate helpful resources. Students will practice completing tasks in the online learning environment as preparation for success in their online graduate courses. This orientation course will be available to students as a reference tool throughout the entirety of your program. This orientation course is for the online HCI program only.

HCIN 540 | INTRODUCTION TO HEALTH CARE INFORMATION MANAGEMENT
Units: 3 Repeatability: No
This course provides foundational knowledge and skills in health information management, informatics, and U.S. healthcare delivery, focusing on computer hardware, network architecture, electronic health records (EHRs), and healthcare software applications. It covers regulatory compliance, patient privacy, information security, and healthcare reimbursement while exploring current healthcare delivery trends, EHRs, interoperability, precision medicine, and healthcare database management and data analysis skills.

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. Course is NOT required for Nursing Informatics students.

HCIN 542 | SYSTEMS ANALYSIS AND DESIGN FOR HEALTH CARE INFORMATICS
Units: 3 Repeatability: No
This foundational course in the MS Degree in Health Care Informatics equips students with the essential knowledge and skills required for the planning, analysis, design, and implementation of computer-based information and technology systems within healthcare settings. Topics covered encompass the complete spectrum of system development, project management, and technology integration and include: the systems development life cycle, project management skills, requirement analysis and specification, feasibility and cost-benefit analysis, workflow analysis, process improvement/optimization leveraging techniques such as Lean Six Sigma, and Agile, logical and physical design, prototyping, system validation, change and communication management, deployment, human factors, and post-implementation review. Through a structured design, students gain a deep understanding of these critical elements, preparing them to navigate the complex landscape of health informatics and contribute effectively to healthcare technology advancements.

HCIN 543 | DATABASE DESIGN AND KNOWLEDGE MANAGEMENT
Units: 3 Repeatability: No
Prerequisites: HCIN 540 with a minimum grade of C- and HCIN 541 with a minimum grade of C-
This course offers opportunities for students to acquire advanced database skills. Applied skills, emphasizing database design, data structuring, modeling and the development of database management systems are examined. Fundamental competencies in knowledge management, change management, and system engineering as they pertain to the healthcare environment and related fields are explored. Students will design and manipulate databases using software applications, such as Structured Query Language (SQL), to resolve selected operational problems.

HCIN 543P | DATABASE DESIGN AND KNOWLEDGE MANAGEMENT PRACTICUM
Units: 2 Repeatability: No
Prerequisites: HCIN 540 with a minimum grade of C-
This practicum offers opportunities for students to acquire advanced database skills, including database design, data structuring, modeling, and the development of database management systems. Fundamental competencies in knowledge management, change management, and system engineering about the healthcare environment and related fields are applied. Students will use software applications like Structured Query Language (SQL) to design and manipulate databases to resolve selected operational problems.

HCIN 544 | ADVANCED HEALTH CARE INFORMATION MANAGEMENT
Units: 3 Repeatability: No
Prerequisites: HCIN 540 with a minimum grade of C- and HCIN 552 with a minimum grade of C-
This course explores advanced healthcare information management topics, focusing on cybersecurity, interoperability, emerging trends in technology, and health system leadership. Ethical considerations and professional practice are central to the discussions. Privacy, security risk assessments, and comprehensive security plans for health systems are examined. Students will apply reflective practice to extract meaningful insights from leadership activities.

HCIN 545 | HEALTH CARE INFORMATICS PRACTICUM (INDEPENDENT STUDY)
Units: 1-4 Repeatability: Yes (Can be repeated for Credit)
Prerequisites: HCIN 540 with a minimum grade of C-
This practicum provides the students with practical experience in real-world healthcare informatics and data analytics settings. Emphasis is on translating theoretical knowledge into practical skills in a professional environment. The functions and responsibilities of informatics specialists and data analysts are examined. Under the guidance of experienced professionals, students will further their understanding of daily operations, data management, patient privacy concerns, and technology implementation in healthcare settings. Students will identify a problem or challenge within the healthcare setting and develop a project to address it.

HCIN 546 | M.S. HEALTH CARE INFORMATICS CAPSTONE
Units: 1-3 Repeatability: No
Prerequisites: HCIN 615 with a minimum grade of C-
This capstone course marks the conclusion of the MS Health Care Informatics Program, designed for an in-depth exploration of the field of health informatics with a focus on its application across various health science areas. Students will explore how information technology and healthcare intersect to address modern challenges in health sciences, emphasizing the evaluation of health information technology systems in meeting current healthcare needs. The course culminates with each student completing an applied research project, which encompasses not only the project's execution but also its presentation for professional and peer evaluation. Additionally, the course includes the development of a reflective ePortfolio and an exploration of current issues in Health Informatics within the context of a rapidly evolving healthcare delivery system.

HCIN 547 | HEALTH CARE ANALYTICS
Units: 3 Repeatability: No
Prerequisites: HCIN 543 with a minimum grade of C-
The course emphasizes the practical application of data analytics in addressing specific clinical queries, crafting clinical decision support rules, and employing precision medicine concepts. Students will develop the practical skills necessary to use various types of clinical data in addressing clinical inquiries using an evidenced-based approach. A range of clinical data sets will be examined including those at the population level. Through clinical case studies students will develop their data analytics expertise.

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 Repeatability: No
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 Repeatability: No
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
Students will engage in a comprehensive exploration of clinical documentation systems. This course offers a blend of theoretical knowledge and practical application, with a strong focus on experiential learning using an academic electronic health record system. Students will trace the historical trajectory of clinical documentation systems, gaining insight into their development and evolution over time. Students will examine the intricate hardware and software requirements essential for Electronic Health Records (EHRs). A problem-based learning approach is employed to cultivate students' proficiency in developing clinical rules and alert systems for clinical information systems. These skills will be applied for purposes such as quality assessment, risk analysis, billing processes, bioinformatics, genomics, and research applications. Emphasis is placed on understanding the regulatory landscape surrounding EHRs, including compliance with the Health Insurance Portability and Accountability Act (HIPAA), the Genetic Information Nondiscrimination Act (GINA), requirements from the Centers for Medicare and Medicaid Services (CMS), and information security regulations.

HCIN 552P | CLINICAL DOCUMENTATION: ELECTRONIC MEDICAL RECORD SYSTEMS MANAGEMENT PRACTICUM
Units: 2 Repeatability: No
Prerequisites: HCIN 552 with a minimum grade of C- (Can be taken Concurrently)
This practicum explores the nurse informaticist role, providing students with expertise in the design, construction, testing, and implementation of changes in electronic medical record (EMR) systems. Emphasis is placed on assessing the effectiveness and safety of EMRs, aiming to identify areas for improvement. Students will translate data from the EMR into actionable insights to improve patient outcomes and operational efficiencies. The design of clinical rules and alerts within EMR systems will be explored, focusing on supporting and improving clinical decision-making processes. Students will gain hands-on experience using EMR capabilities to enhance healthcare practices and contribute to the ongoing advancement of informatics in nursing.

HCIN 553 | CLINICAL DOCUMENTATION SYSTEMS: SPECIALIST ROLE
Units: 3 Repeatability: No
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 with a minimum grade of C
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
Prerequisites: HCIN 540 with a minimum grade of C-
This course explores the role of leadership in driving innovation and change in healthcare organizations. Students will examine leadership theories, ethics, values, and social justice principles and their relevance in the healthcare setting. Project implementation strategies will be explored. An experiential learning approach is used, enabling participants to gain practical experience, develop transferable and marketable skills, and engage in reflective practices to foster leadership growth. The knowledge and skills acquired through this experience are designed to enhance competencies in leading within diverse healthcare settings.

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 594 | SPECIAL TOPICS IN HEALTH CARE INFORMATICS
Units: 1-6 Repeatability: Yes (Repeatable if topic differs)
Prerequisites: HCIN 540 with a minimum grade of C-
A special topics course in areas within health care informatics.

HCIN 600 | POPULATION HEALTH ANALYTICS
Units: 3 Repeatability: No
Prerequisites: HCIN 540 with a minimum grade of C-
This course focuses on the Institute for Healthcare Improvement’s Triple Aim and how data analytics can be used to identify and address health disparities. Methods for measuring and analyzing population disease burden are explored. 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 | RESEARCH FUNDAMENTALS AND BIOSTATISTICS
Units: 3 Repeatability: No
Prerequisites: HCIN 540 with a minimum grade of C- and HCIN 552 with a minimum grade of C-
This course focuses on advanced methods and tools aimed at managing a diverse array of healthcare challenges. Students will develop skills to evaluate data for the purpose of formulating, resolving, and empirically testing data-driven hypotheses. It examines the application of quantitative and qualitative data, and biostatistics, to critically assess healthcare programs and research endeavors. Pivotal domains of data stewardship and data governance are examined. Information security, privacy, and confidentiality are discussed as related to the roles of an informaticist and data analyst. Complementing these core topics, the curriculum also explores emerging trends in healthcare, data science, genomics, and bioinformatics.

HCIN 620 | MACHINE LEARNING APPLICATIONS FOR HEALTH CARE
Units: 3 Repeatability: No
Prerequisites: HCIN 543 with a minimum grade of C-
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 with a minimum grade of C- and HCIN 541 with a minimum grade of C-
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
Prerequisites: HCIN 540 with a minimum grade of C-
This course explores the legal principles and strategies for minimizing risk and liability within healthcare systems. Through the examination of case studies, students will review legal and ethical dilemmas arising in healthcare. The laws and regulations governing information management, patient rights, patient privacy (Health Insurance Portability and Accountability Act HIPAA), and quality management in healthcare are explored. Students will use various quality management tools, such as Root Cause Analysis (RCA) and a Failure Mode Effect Analysis (FMEA), to address liability issues within the healthcare setting.

HCIN U540 | INTRODUCTION TO HEALTH CARE INFORMATION MANAGEMENT
Units: 3
Provides students with necessary skills to understand the basis for heath 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 elctronic health record (EHR) certificaiton as a foundation for understanding emerging issues in health care informatics.