Health Information Management (HIM)

Course information contained within the Bulletin is accurate at the time of publication in July 2024 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

HIM 1005. International Classification of Disease, 10 Revision, CM & PCS Coding Systems for Experienced Coders. 3 Credit Hours.
The course is designed to provide individuals with ICD-9-CM coding experience with the requisite knowledge and skills to be proficient with the ICD-10-CM and ICD-10-PCS code sets. An overview of diagnosis and procedural coding conventions and guidelines will be provided. Emphasis will be placed on application of coding guidelines and conventions to intermediate and advanced coding cases.

Repeatability: This course may not be repeated for additional credits.

HIM 1006. Electronic Documentation for Health Care Providers. 3 Credit Hours.
This course will explore introductory concepts related to electronic health record information and the use and importance of health care documentation as it related to research, reimbursement and continuum of care. Content related to electronic health record interoperability, privacy and security will be examined. Examples of various health care settings/providers and their specific use of electronic health records will be explored.

Repeatability: This course may not be repeated for additional credits.

HIM 1055. IT Applications for Health. 3 Credit Hours.
This course gives students an overview of several key areas of information technology they will face in their healthcare career. Students will learn about current trends and applications used in health information management settings and public health sectors. Topics to be explored in this course include, but are not limited to: HIPPA, privacy and security, mobile apps, healthcare website design, video creation, social media management, MS Office applications and presentation software. Other current trends is health technology will be covered as appropriate.

Repeatability: This course may not be repeated for additional credits.

HIM 1101. Medical Terminology. 3 Credit Hours.
An introduction to the language of medicine, including medical and anatomical terminology, definitions, the process of word construction, and analysis of terms. The focus is on the use of prefixes, suffixes, and combining forms that facilitate the ability to translate medical terms. Symptoms, diseases, operative procedures, laboratory tests, diagnostic and treatment terms, and abbreviations are studied.

Repeatability: This course may not be repeated for additional credits.

HIM 2031. Global Development of Health Information Systems. 3 Credit Hours.
Health information systems (HIS) use healthcare technology to acquire, store, deliver and analyze medical data, which is also critical to medical facilities and personnel management, medical error reduction, professional training, and quality improvement. This course will introduce the different HIS/HIT developed worldwide and the various governments' roles in supporting the HIS development. Students will also learn how HIS/HIT is used in clinical care, patient monitoring, pandemic monitoring, and emerging global health areas.

Course Attributes: SI

Repeatability: This course may not be repeated for additional credits.

HIM 2203. U.S. Health Care System. 3 Credit Hours.
The health care delivery system is studied, with a focus on issues related to access, cost and quality. System components are examined including: important values and beliefs; the historical development of the health care system and the current status; health services financing; the role of health care professionals; the use of technology; outpatient, primary care, inpatient, managed care, long-term care and integrated services; issues for special populations; the process and purpose of health policy; and, future options for the delivery system. The role of the health information management professional is examined within the context of the health care system, including the importance of the professional Code of Ethics.

Repeatability: This course may not be repeated for additional credits.

HIM 2215. Health Information Management IT Fundamentals. 3 Credit Hours.
The course will provide a foundation in information technology (IT) concepts related to the HIM Practitioner. Content related to IT architecture, computer hardware, software, and networking systems, security, IT valuation, types of computer systems, centralized versus decentralized design, data capture technologies, and emerging technologies will be explored in the context of the health care industry. Specific attention will be addressed to the application of information technologies on the ability of health care organizations to respond to changes in the environment including regulatory, legislative, and accrediting agency initiatives.

Repeatability: This course may not be repeated for additional credits.

HIM 3020. Special Topics in Health Information Management. 1 to 3 Credit Hour.
This course provides students the opportunity to explore new and emerging areas in the field of health information management and to gain a deeper understanding of a specific area within the field. This course may also be used to present areas of study not normally taught in the program

Repeatability: This course may be repeated for additional credit.

HIM 3031. Health Technology Assessment. 3 Credit Hours.
Technological innovation has improved health care delivery and patient outcomes. Examples of breakthroughs include vaccines, targeted cancer therapies, joint replacement, pain management, infection control, and health information technology. Manufacturers, regulators, clinicians, patients, hospital managers, payers, policy makers, and others increasingly demand evidence to support decisions about technology's development, regulation, purchasing, utilization, and reimbursement to ensure its appropriate use, and more. This course introduces fundamental aspects and issues of the dynamic field of health technology assessment (HTA), from an international perspective. The course will cover HTA's growth and development in the public and private sectors, HTA methodologies and processes, and reporting to diverse users. Students will learn about how HTA impacts the development, adoption, and diffusion of health technology in the health care sector.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in HIM 2031.

HIM 3082. Independent Study in Health Information Management. 1 to 3 Credit Hour.
Exploration of an aspect of health information management, in accordance with a student's learning objectives. NOTE: Permission of the faculty member is required.

Repeatability: This course may be repeated for additional credit.

HIM 3101. Health Record Documentation. 3 Credit Hours.
The purposes and uses of health record documentation will be explored including the primary and secondary uses of healthcare data. The development, content, format, and standards of health record will be studied for various healthcare settings. Documentation requirements including accreditation, regulatory, and licensure standards and required data sets will be examined. An introduction to Health Information Management functions (including storage and retrieval, classification systems, access and release of health information, transcription, electronic document management systems) will be provided.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 1101 or 'Y' in CRHI01), HIM 1055, (HPM 2214 or 'Y' in CRHP01), ((KINS 1223 and KINS 1224), (KINS 1221 and KINS 1222), (KINS 1223 and 'Y' in CRKI03), (KINS 1224 and 'Y' in CRKI02), ('Y' in CRKI02 and 'Y' in CRKI03), or (KINS 1221 and 'Y' in CRKI17)), and (EPBI 2219, MATH 1013, PSY 1167, SOC 1167, STAT 2101, 'Y' in CREP01, 'Y' in CRMA02, or 'Y' in CRSO02)

HIM 3106. Pathophysiology. 3 Credit Hours.
An introduction to basic concepts of disease processes. Clinical course, related diagnostic and therapeutic procedures and expected outcomes for commonly occurring medical conditions are addressed.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 1101, 'Y' in HIM1, or 'Y' in CRHI01), (KINS 1223, 'Y' in KIN1, or 'Y' in CRKI02), and (KINS 1224, 'Y' in KIN2, or 'Y' in CRKI03)

HIM 3107. Healthcare Leadership and Strategic Management. 3 Credit Hours.
The course is designed to explore the characteristics and functions of management in the healthcare environment with specific attention to leadership and strategic management. This course includes the study of traditional management functions including planning, organizing, leading, and controlling, with an emphasis on the administrative role of the health information management professional. Students will also explore how HIM practitioners support the organization's initiatives, mission, vision and objectives through the development of policies, procedures, and allocation of resources. Change management theories and best practices will be evaluated.

Repeatability: This course may not be repeated for additional credits.

HIM 3111. Statistics and Research in Health Care. 3 Credit Hours.
Course addresses medical research methodologies; computation of routine health care institutional statistics; the United States vital statistics system; and, presentation and interpretation of health care data.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (STAT 2101, MATH 1013, PSY 1167, SOC 1167, 'Y' in STT5, 'Y' in CRMA02, or 'Y' in CRSO02)

HIM 3113. Healthcare Database Design and Development. 3 Credit Hours.
Efficient and effective database design is critical to a healthcare organization's ability to collect, report, analyze and use data. In this course, students will effectively design and build relational databases in 3NF using multiple relational database management systems with specific attention to design which facilitates performance of daily operations. In addition, students will become adept at a wide range of data definition functions including updating, deleting, saving, and reverting to older versions of databases. Significant attention is devoted to the data manipulation language. Query development will include simple and complex queries such as conditions, aggregation, string functions, nested queries, mathematical functions, and joins using traditional forms and ANSI standard forms. An introduction in data analysis and migration will also be explored with pivot tables and data exports and imports. This course requires extensive hands on laboratory assignments.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 1055, CIS 1055, 'Y' in CS04, or 'PASS' in BCP)

HIM 3203. Electronic Health Record Systems. 3 Credit Hours.
The role of the electronic health record systems (EHRS) as they support improvements in the quality of patient care and reduction of healthcare costs will be addressed. This class offers an overview of the features and functions in electronic health record systems and their application across the healthcare continuum with emphasis on the acute care and ambulatory care settings. The course will explore the history of the development of interoperable EHRS, the drivers and impediments for adoption, and the development of nationwide health information exchange. The course will cover the various types of health information systems that serve as feeders to clinical repositories.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 2215 (may be taken concurrently) or 'Y' in HIM3)

HIM 3208. International Classification of Diseases. 3 Credit Hours.
An intensive coding course based on the International Classification of Diseases diagnosis and procedural classification systems, as modified for use in the United States. The emphasis of instruction will be on application of coding principles for the acute care inpatient setting. The Medicare inpatient prospective payment system and the determination of diagnostic related groups (DRGs) for hospital reimbursement will also be addressed.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3106 or 'Y' in CRHI08)

HIM 3216. Clinical Procedures and Pharmacology. 3 Credit Hours.
The course is designed to develop an understanding of pharmacology and the technical aspects of commonly performed surgical and medical procedures and diagnostic tests. Detailed descriptions of procedures, approaches, equipment and implanted devices used will be analyzed. The procedural objective in terms of diagnosis versus treatment will also be discussed. An introduction to the principles of pharmacology, including drug terminology, drug origins, forms, and actions; routes of administration; and the use of generic name drugs, trade name drugs and categories of drugs to treat various body systems will also be addressed.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3106 or 'Y' in CRHI08)

HIM 3271. Professional Development. 1 Credit Hour.
This course is designed to help prepare students for career planning. The emphasis is on interview preparation (including behavioral event interviewing), expected behaviors and legal issues. Career options and resume preparation in the context of life long career development will be explored.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

HIM 3297. Health Information Management Human Resource Management. 3 Credit Hours.
Personnel policies and practices are evaluated for the healthcare environment, including: recruitment, selection and retention; personnel training and development; job design and analysis; performance management; employee and labor relations; compensation and benefits programs; and health and safety issues. NOTE: Writing Intensive course.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Course Attributes: WI

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3107 or 'Y' in CRHI09)

HIM 4101. Health Informatics: Infrastructure and Standards. 3 Credit Hours.
This course will explore the purpose, use, benefits and challenges of various standards to achieve semantic interoperability for health information exchange. Healthcare standardization related to privacy, security, clinical vocabularies, data communication, architectural framework, and data content will be evaluated in the context of meaningful use of electronic health record systems (EHRS). National and international standards development efforts are also discussed. Gaps between adopted standards and existing practice will be evaluated. Key content and data standards will be explored.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3203 or 'Y' in CRHI03)

HIM 4102. Legal Aspects of Health Information Management. 3 Credit Hours.
This course provides a foundation of the legal, ethical and regulatory requirements that affect the use, access and disclosure of health information. The U.S. legal system, sources of laws and regulations, elements of case law, civil procedures and trial processes will be addressed. Emphasis will be on issues related to privacy and confidentiality; negligence, malpractice and liability; informed consent and contracts.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3101 or 'Y' in CRHI07) and (HPM 2214 or 'Y' in CRHP01)

HIM 4104. Health Information Management Operations Management. 3 Credit Hours.
This course will explore methods and management tools used in the analysis of health information systems. Students will develop objectives, policies and procedures and will perform benchmarking, productivity measurement, and workflow and layout analyses. Traditional business process analysis and redesign tools such as data flow diagramming, flow charting, and swimlanes, will be evaluated including the benefits and challenges of each technique. A survey of functional requirement specification gathering approaches will be reviewed and evaluated. Contract management, resource allocation, and workflow process redesign within the context of health information systems will also be addressed.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3297 or 'Y' in CRHI06) and (HIM 3203 or 'Y' in CRHI03)

HIM 4105. Current Procedural Terminology Coding. 3 Credit Hours.
A coding course, based on the Current Procedural Terminology (CPT) coding system that is used for classifying physician and hospital outpatient services. The course examines the role of CPT codes in claim submission, benefit adjudication and provider reimbursement. The Healthcare Common Procedure Coding System (HCPCS) II is also addressed and coding skills for the application of coding principles are developed.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3106 or 'Y' in CRHI08) and (HIM 3216 or 'Y' in CRHI05)

HIM 4113. Healthcare Reimbursement Systems. 3 Credit Hours.
Reimbursement methodologies are studied, as they relate to a variety of health care settings, payers and patient populations. Case mix analysis, charge master description, revenue cycle management, claims processing and fraud and abuse are discussed. Provides an overview of accounting and financial terms used by health care managers.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Co-requisites: HIM 4105.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3208 or 'Y' in CRHI04) and (HPM 2214 or 'Y' in CRHP01)

HIM 4121. Healthcare Data Analytics. 3 Credit Hours.
Healthcare organizations have an ever increasing need to access, interpret, and analyze information from a multitude of data sources to respond quickly to changes in clinical practices, legislative, regulatory, and accrediting body initiatives, and the competitive marketplace. This course will explore data mining and analytic tools which facilitate the analysis of complex healthcare data. Students will review computer tools for manipulation, analysis and presentation of data using real-world examples across a wide range of healthcare settings.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3113 or 'Y' in CRHI02)

HIM 4202. Health Information Management Project Management. 3 Credit Hours.
Managing EHRS projects centers on managing uncertainty at all stages. In this course, students will be introduced to the concepts of managing EHR projects by focusing on initiating, planning, executing, controlling, and closing projects in the context of topics such as integration, scope, timing, cost, quality, human resource, technology, communication, contracts, risk and procurement. The System Development Life Cycle of the EHRS development will be explored in depth. Topics surrounding cost-benefit analysis, return on investment, requests for proposal, and vendor selection will be emphasized.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Co-requisites: HIM 4104.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in HIM 4101.

HIM 4206. Intermediate Coding. 3 Credit Hours.
This course focuses on advanced topics in diagnosis and procedural coding using the ICD-10-CM, ICD-10-PCS, CPT and HCPCS coding systems. Emphasis will be placed on applying official coding guidelines, and health record documentation analysis and reimbursement optimization. Students will be able to code inpatient, ambulatory surgery and physician encounter cases. Computerized coding and grouping software will be used. The emerging role of computer assisted coding will also be addressed.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3208 or 'Y' in CRHI04), (HIM 4105 or 'Y' in CRHI11), and (HIM 4113 or 'Y' in CRHI12)

HIM 4207. Healthcare Quality Improvement. 3 Credit Hours.
This course provides a foundation in quality and patient safety management processes in healthcare. The role of performance measurement and reporting, professional staff credentialing, registries, risk and utilization management, data analysis, and presentation in healthcare quality management will be discussed.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in (HIM 3208 or 'Y' in CRHI04) and HIM 3111.

HIM 4286. Management Internship. 4 Credit Hours.
Intensive professional practice experience on a full-time basis for 4 weeks at selected affiliated institutions; emphasis on administrative aspects of health information management services.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Repeatability: This course may be repeated for additional credit.

Pre-requisites: Minimum grade of C in HIM 4101, (HIM 4102 or 'Y' in CRHI10), (HIM 4105 or 'Y' in CRHI11), (HIM 4113 or 'Y' in CRHI12), (HIM 4207 or 'Y' in CRHI13), and HIM 4121.

HIM 4298. Health Information Management Senior Seminar. 3 Credit Hours.
Writing intensive capstone course that requires a formal paper regarding an important and current health information management issue. Problems and cases are also used for the development of critical thinking, problem-solving, and decision-making skills. The assignments facilitate the application of health information management expertise and the skills needed for a professional career path. NOTE: Writing intensive course.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Health Information Management.

Course Attributes: WI

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of C in HIM 4101, (HIM 4102 or 'Y' in CRHI10), (HIM 4105 or 'Y' in CRHI11), (HIM 4113 or 'Y' in CRHI12), HIM 4121, and (HIM 4207 or 'Y' in CRHI13)

HIM 5101. Fundamentals of Health Informatics. 3 Credit Hours.
This course provides an introduction to the history, reasoning, and development of systems focused on the generation, aggregation, and analysis of health data. Students will gain exposure to usability requirements - elements of design which impact selection - in addition to the issues impacting data liquidity in the healthcare system. The course will also consider the various types of health information systems that exist in organizations and serve as feeders to clinical repositories of information.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5102. Applications of Computer Programming in Health Informatics. 3 Credit Hours.
It is critical to teach health professionals how to apply computer programming and health informatics for successful health data analysis and application development. This course will introduce the characteristics of health data and provide basic and advanced applications of computer programming, especially Python and R, specifically focused on healthcare data analytics and application developments. By the end of this semester, students will be able to perform health data manipulation using Python and R, building predictive models, discover trends, visualize and present the analytical results, and design machine learning approaches in healthcare big data in medicine, and solve associated data mining challenges on dealing with such complex heterogeneous data. This course is devised in two parts, 1) Introducing the corresponding programming functions and 2) Practical applications to real life health applications.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5106. Technology for Population Health. 3 Credit Hours.
Individuals and organizations are increasingly dependent on technology for the creation of information relevant to health status. Technology is being utilized to monitor health or social behavior or provide interventions in the form of information, alerts, or the provision of information to advanced health practitioners. This course is intended to provide students an opportunity to assess existing and emerging technologies as they relate to the delivery of healthcare or the maintenance of health status.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5111. Technology for Healthcare Financial Management. 3 Credit Hours.
This course examines the nexus of value based care, financial management, and healthcare payment. Students examine complex financial systems and explore the principles of payment as they apply to various types of health care settings. This course focuses on payment policy and reporting requirements, and the students become familiar with topics such as fraud and abuse, revenue cycle management, integration of clinical and financial systems, charge master data, and managerial implications of alternative payment models.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5112. Health Information Systems: Design and Decision Making. 3 Credit Hours.
This course provides an introduction to the effective management of health informatics systems. Students will gain an understanding of the technical foundations required for the successful management of health informatics systems and the impact of adopting initiatives relative to an organization's operational and strategic goals. Students gain an exposure to industry benchmarking and appropriately valuing technology in healthcare. Topics related to the use of IT as a strategic resource, forming strategic health IT plans, the importance of stakeholders in health IT programs, and emerging healthcare technologies are explored.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5113. Database Administration for Health Informatics Professionals. 3 Credit Hours.
Modern life science organizations rely on databases for transaction management, data analysis, outcomes assessment, and to satisfy the internal needs of the organization as well as to satisfy regulatory, legal, and accrediting bodies. The goal of the course is to provide hands-on use of database management tools promoting a strong understanding of database design, data modeling and structured query language for data definition and data manipulation, and data analysis tools including pivot tables. In addition, the course will explore operational database systems versus analytic systems, the importance of database design on data integrity, data warehousing, and data mining at modern health science organizations. Data formats, collection, and integrity as they relate to continual performance improvement, with specific attention to practitioner performance, are also stressed.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5114. Health Informatics Project Management. 3 Credit Hours.
The development of interoperable electronic health record systems has resulted in increased systems integration, convergence, and complexity. Nearly half of all IT projects fail to meet budget, schedule, and functionality. The course provides a hands-on approach to systems analysis and management of health informatics (HI) projects. Students will be introduced to the concepts of managing HI projects by focusing on initiating, planning, executing, controlling, and closing projects in the context of topics such as integration, scope, timing, cost, quality, human resource, technology, communications, and risk and procurement. Students will also be provided an opportunity to analyze functional requirements for HI projects using a variety of process modeling approaches.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5127. Privacy and Security: Protecting Healthcare Data. 3 Credit Hours.
This course focuses on privacy and confidentiality and current legislative and health policy issues for electronic health record systems (EHRs). Ethical issues related to EHRs and advocacy of patients' and consumers' needs are explored. The course provides students with an understanding of regulatory requirements related to the protection of health information and introduces technical approaches to ensure compliance.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5128. Health Data: Standards and Interoperability. 3 Credit Hours.
This course provides an introduction to the principles of healthcare interoperability and provides foundation in healthcare standardization related to: privacy, security, clinical vocabularies, data messaging, architectural framework, data content, and the meaningful use of electronic health record systems (EHRs). The course explores the role of healthcare standards in supporting interoperability, patient care, research, and the practice of evidence-based medicine. National and international standards development efforts are also discussed.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

HIM 5129. Health Data Analysis. 3 Credit Hours.
Healthcare delivery systems require capabilities to effectively generate, aggregate, and analyze data relevant to the optimal delivery of healthcare and maintenance of health. This course is intended to build on the competencies gained in previous courses surrounding the creation, structure and maintenance of clinical datasets, patient generated health data, and elements of the digital medical record. The course is designed to embrace team based approaches to solving complex issues in the healthcare delivery system. Students will use data visualization tools paired with quantitative data driven techniques which aid in addressing the challenges in the Triple Aim in healthcare. This course will enable the student to build a basic working knowledge of data analysis, dash boarding, and clinical intelligence platforms using appropriate methodologies.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in (HIM 8013 or HIM 5113)

HIM 5190. Special Topics. 3 Credit Hours.
This course provides students the opportunity to explore new and emerging areas in the field of health informatics, to gain a deeper understanding of a specific area within the field. This course may also be used to present areas of study not normally taught in the program.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

HIM 5212. Application Development in Public Health. 3 Credit Hours.
This course provides an in-depth understanding of the design and decision making processes for health informatics systems. Students will gain an understanding of the technical foundations required for the successful management of health informatics systems and the impact of adopting initiatives relative to an organization's operational and strategic goals. Students gain an exposure to industry benchmarking and appropriately valuing technology in healthcare along with current software development life cycle methodologies. Topics related to the use of IT as a strategic resource, forming strategic health IT plans, the importance of stakeholders in health IT programs, collection and documenting user stories, developing design documents, and building solutions and emerging healthcare technologies are explored. Students will collaborate in teams to complete a pragmatic, real world project.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5101 and HIM 5102.

HIM 5213. Informatics Solution Design and Development for Health Data and Its Applications. 3 Credit Hours.
This course provides an in-depth understanding of the processes and tools used in health informatics for designing and developing advanced health informatics data solutions. This course prepares students to design and develop health specific solutions and applications using current health data models including star schemas, the Observational Health Data Sciences and Informatics (OHDSI), and the Observational Medical Outcomes Partnership (OMOP) common data models (CDM), with clinical, administrative, and social determinants of health data. Relational databases, graph databases, GIS systems, and other NoSQL databases will be used for development from Health Informatics use cases. Students are expected to be able to create health specific informatics solutions and applications, such as those used for clinical data research networks and patient cohort discovery tools.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.
College Restrictions: Must be enrolled in one of the following Colleges: College of Public Health.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5101 and (HIM 5113 or CIS 5002)

HIM 5256. Global Health Informatics. 3 Credit Hours.
Health and diseases have no country boundaries. Increased international travel has increased the spread of infectious disease, as evidenced by the Ebola virus and COVID-19 pandemics. Health Information Technology, particularly with the spread of mobile phones, brings new paradigms in tracking and battling diseases globally. This course will explore how global health informatics (GHI) combat diseases and promote health, especially in low- and middle-income countries (LMICs). The topics cover key concepts, frameworks, examples, and lessons learned in designing and implementing digital health systems in the developing world. Students will learn informatics innovations in global health, focusing on technologies to improve developing countries' health outcomes. It targets students interested in designing or implementing a GHI solution in LMICs with a multidisciplinary team. Note: The prerequisite is a minimum grade of B- in HIM 5101 or with Program Director approval based on equivalent experience or education.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5101.

HIM 5299. Introduction to Language Processing and Text Mining for Health Professionals. 3 Credit Hours.
This course provides a basic understanding of natural language processing (NLP) concepts in healthcare using Python programming language. This course is designed for students with a health background who do not have a basic knowledge of the NLP concepts. There is a vast amount of free-text data getting generated every day, such as social media, online chat groups, research publications, and electronic health record data. This data possesses excellent potential to be used for research, quality improvement, and financial purposes. In this class, students will learn the basic and advanced NLP and text-mining methods to extract information from free-text data to generate new knowledge. Students will also learn basic machine learning principles to mine free-text data that does not require to develop complex NLP pipelines. By the end of this course, students will be able to create NLP programs using concepts such as data segmentation, tokenization, text annotations, NLP parsing, part of speech tagging, developing and testing Named Entity Recognition (NER) programs, pattern recognition, and regular expressions. Students will also learn the use of WEKA, an open-source machine learning tool to mine free-text data to extract information automatically using various machine learning models.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5102.

HIM 8016. Principles and Practices of Health Informatics Research. 3 Credit Hours.
As the healthcare system moves toward increased reliance on automation, electronic health records, and information technology, it is imperative to design health informatics research methods to deliver quality, cost-effective and safe healthcare. This course will address the various research practices and innovative research approaches in health informatics and HIM. It will introduce the theories, systems, applications, and technologies for collecting, using and disseminating health data and information. It involves utilizing primary and secondary analysis for direct patient care, reimbursement, patient safety, legal issues, healthcare policy, quality improvement, and public health. Students will learn through discipline-specific examples, step-by-step research design, and explanations of analytical procedures. Upon completing the class, students will be able to conduct quality health informatics research in addressing various informatics-related questions and knowledge discovery from health data.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5129.

HIM 8112. Advanced Clinical Decision Support Systems. 3 Credit Hours.
Clinical decision support systems (CDSS) are computer-based programs that analyze data within electronic health records (EHRs) to provide prompts and reminders to assist health care providers in implementing evidence-based clinical guidelines at the point of care. This course provides a state-of-the-science overview of computer-based CDSS. This course will teach the design principles behind CDSS, CDSS usability and cognitive support, implementation science, mathematical foundations of the knowledge-based systems and pattern recognition systems, clinical vocabularies, legal and ethical issues, patient centered CDSS, and applications of clinical decision support systems in clinical practice.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5102.

HIM 8129. Advanced Health Data Analytics. 3 Credit Hours.
Healthcare delivery systems require capabilities to effectively generate, aggregate, and analyze data relevant to the optimal delivery of healthcare and maintenance of health. This course is intended to enhance existing competencies for the creation, structure and maintenance of clinical datasets, patient generated health data, and elements of the digital medical record. The course is designed to embrace team science approaches to solving complex issues in the healthcare delivery system. Students will use data visualization tools paired with advanced quantitative data driven techniques which aid in addressing the challenges in the Triple Aim in healthcare. This course will enable the student to build a research based working knowledge of data analysis, dashboarding, and clinical intelligence platforms using appropriate methodologies.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5101 and HIM 5102.

HIM 8216. Applications of Machine Learning for Health Informatics. 3 Credit Hours.
The use of machine learning (ML) and artificial intelligence (AI) in healthcare is a must nowadays to enable successful solutions for better patient care. The future of health becomes data-driven. There is an urgent need for a new kind of workforce embracing human intelligence with machine learning skills to solve complex problems from health informatics. This course will integrate problem-based learning (PBL) and research-based teaching (RBT) approaches to apply ML methods and tools for complex real-world health problems. One example is creating intelligent clinical decision support systems for the early diagnosis of neurodegenerative diseases. Students will practice ML on electronic health records (EHR), medical claims, and social media data in healthcare. Upon completing the class, students will be able to identify suitable machine learning approaches and existing tools for a health problem based on the available data variables and records. Note: Students must complete HIM 5102 or equivalent computing experience (with instructor approval) before registering for HIM 8216.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites: Minimum grade of B- in HIM 5102.

HIM 9082. Independent Study in Health Informatics. 1 to 3 Credit Hour.
This course provides students the opportunity to work independently under the direction of a faculty advisor to gain a deeper understanding of an area in Health Informatics.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

HIM 9994. Health Informatics Preliminary Examinations. 1 Credit Hour.
This course supports preparation for taking the preliminary examinations in the Health Informatics Ph.D. program. To enroll, students must have completed all required coursework for the Ph.D. and obtain the approval of the Ph.D. Program Director. Students must be enrolled to take the required preliminary examinations.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

HIM 9995. Capstone Project. 3 Credit Hours.
The capstone course is the culminating class for students in the Health Informatics program. Students will create strategies and approaches that focus on various disciplines of health informatics such as topics relating to the Electronic Health Record, Health Information Exchange, Meaningful Use, and Ethical/Legal issues. In addition, students will analyze systems and evaluate potential decisions from the persona of senior level healthcare executives.

Field of Study Restrictions: Must be enrolled in one of the following Fields of study: Health Informatics.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.
Degree Restrictions: Must be enrolled in one of the following Degrees: Master of Science.
College Restrictions: Must be enrolled in one of the following Colleges: College of Public Health.

Repeatability: This course may be repeated for additional credit.

Pre-requisites: Minimum grade of B- in HIM 5101, HIM 5113, and HIM 5128 (may be taken concurrently)

HIM 9996. Health Informatics Thesis. 1 to 3 Credit Hour.
The MS health informatics thesis is the culminating event for the Thesis Track. The thesis should be an original piece of research. Often, but not always, the research described in the MS thesis can be published in a peer-reviewed journal. The student coordinates the time for the defense and presentation with their Graduate Advisory Committee, which is responsible for evaluating the thesis and its defense.

Field of Study Restrictions: Must be enrolled in one of the following Fields of study: Health Informatics.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

Pre-requisites: Minimum grade of B- in HIM 5101, HIM 5102, HIM 5113, HIM 5129, HIM 5128, HRPR 5001, HIM 8016, and (HIM 5106, HIM 5111, HIM 5112, HIM 5114, HIM 5127, HIM 5212, HIM 5213, HIM 5299, HIM 8112, or HIM 8216)

HIM 9998. Dissertation Proposal Research for Health Informatics. 1 Credit Hour.
After passing the preliminary examinations, students may enroll in HIM 9998. Students must be enrolled for 1 credit of HIM 9998 each term until they file their dissertation proposal with the Graduate School. To fulfill the requirements of HIM 9998, students must submit a dissertation proposal, successfully defend it orally before their Committee, apply for IRB approval for the proposed research, and submit the proposal to the Graduate School. Once the proposal is defended, the student is elevated to candidacy and eligible to register for dissertation credits.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

Pre-requisites: Minimum grade of P in HIM 9994.

HIM 9999. Health Informatics Dissertation Research. 1 to 6 Credit Hour.
This course is limited to PhD candidates who have completed and defended a dissertation proposal that is filed with the Graduate School by the last day to add a course in the semester. Continuous registration in 9999 fall and spring is required until the dissertation is successfully defended.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

Pre-requisites: Minimum grade of P in HIM 9998.