HEALTH INFORMATICS

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Students in Master of Science in Health Informatics will be at the forefront of the health industry, equipped with the technical, communication, and leadership skills needed to thrive in the fastest growing field: informatics. In this master's degree program accredited by HIMSS, students will learn to leverage health data tools and applications to achieve business and research outcomes within the health sector. Students will work on hands-on informatics projects using real-world data from a curated health data repository built with industry partners. Students will learn to optimize data to support evidence- and value-based results and enhance their knowledge in digital health, informatics, analytics data science, and artificial intelligence to solve the health challenges of our time.

This degree prepares students to:

- Employ quantitative and qualitative methods to achieve business and research outcomes for health informatics projects
- Utilize project management skills to operationalize health informatics goals
- Apply effective communication techniques to create collaborative teams focused on successful implementation of data-driven solutions
- Identify and solve real-world challenges in the health industry using workflow tools and gap analyses
- Design sustainable, data-driven business practices to support evidence- and value-based results

Master of Science in Health Informatics with a Concentration in Health Data Informatics and Analytics

The Health Data Informatics and Analytics master's degree concentration is offered online or on campus at the University of Denver in the evenings, or in a combination of both, to meet the needs of busy adults. This degree has a set of core courses addressing healthcare systems and regulatory environments, finance, and communication and leadership and is accredited by HIMS. The concentration prepares students for the evolving environment in the health industry focused on healthcare system informatics and analytics. In addition, this concentration presents many opportunities to bridge the divide between field-level and director-level positions related to informatics and analytics within the healthcare delivery system. The program incorporates lessons learned from across the training spectrum and produces graduates with the necessary skills to create and populate the new mid- and higher-level management positions.

This concentration focuses on three areas of development. First, students develop a solid base of knowledge about healthcare delivery in the

U.S. within the framework of the "4 Ps": Patients/People, Providers, Payors, and Population. This framework allows students to understand both informatics and analytics related to the process of transforming data into information, knowledge, and then insight (DIKI) along the broad scope that exists in the health industry and U.S. healthcare today. Second, students will compare and contrast the similarities and differences between asking and answering research and business questions, as well as demonstrate competencies in this area. Third, students will learn how to collaborate, organize projects, and formulate real-life solutions to existing healthcare industry issues.

This degree prepares students to:

- Compare how healthcare data is generated, routed, and analyzed within the U.S. healthcare delivery system and the health industry from the perspectives of patients/people, providers, payors, and populations and how these processes affect interoperability
- Distinguish major, as well as innovative, health information systems as they relate to the perspectives of patients/people, providers, payors, and populations - utilizing both active and passive informatics
- Appraise healthcare and health industry informatics tools as they relate to the past, present, and future directions of healthcare reform - as well as how these differ from other industries
- Articulate the ways in which HIPAA regulations and biostatistics principles influence data informatics and analytics
- Evaluate the impact of data governance challenges, ethical implications, and security issues on stakeholders in healthcare data research, business workflows, and compliance
- Recommend study and project designs for healthcare informatics and analytics-based case studies incorporating frameworks such as database architecture, data warehousing, natural language processing, and epidemiology
- Defend the fundamental process of transforming data to information, knowledge, then insight (DIKI) through integrating disparate public data sets and modeling predictive analytics to create solutions, complete with data visualizations, to healthcare and health industry challenges
- Develop a professional, actionable implementation, change management, and assessment plan for bringing IT, clinical, engineering, and business individuals together to solve a healthcare industry challenge

Master of Science in Health informatics with a Concentration in Digital Health

The Digital Health master's degree concentration is offered online or on campus at the University of Denver in the evenings, or in a combination of both, to meet the needs of busy adults. This degree has a set of core courses addressing digital health in both the health industry and healthcare

delivery systems. This program is accredited by HIMSS and for CAHIIM's Digital Health Leader program. Special focus is provided on workflow and gap analysis, finance, and communication and leadership skills required to implement digital health initiatives. The innovative classes in the concentration cover how to reduce costs and improve access to quality healthcare through technologies that comprise the framework of modern interconnected healthcare.

In this master's degree concentration, students stay at the cutting-edge of emerging health technology, including telehealth, digital health, and virtual health by learning how technology affects and improves diagnosis, treatment, training, patient records, and financial transactions. Students will gain high-level knowledge of the interoperability of healthcare information systems, the benefits and barriers associated with consumer digital health products, and the evolving use of distance medicine.

This degree prepares students to:

- Assess how technology affects diagnosis, treatment, training, record keeping, financial transactions and data outcome analysis.
- Compare and contrast emerging trends in medical and digital health technology including electronic health records, telehealth, and virtual health
- Analyze how technology can help improve quality of consumer/patient care and reduce costs as healthcare moves from a volume-based to value-based system
- Recommend different ways to facilitate discussion and communication between clinical providers and their counterparts

Master of Science in Health Informatics with a Concentration in Health Data Science

In this master's program accredited by HIMSS, students will learn to leverage health data science tools and applications to achieve business and research outcomes within the health sector. Students will work with real hands-on data science projects using deidentified data from a curated health data repository built with industry partners. Students will learn to optimize data to support evidence- and value-based results and enhance their knowledge in analytics, data science, machine learning and artificial intelligence. In addition, virtual reality will be a main method of instructional support throughout this curriculum. Main areas of study will be integrating data platforms in the health and healthcare industries, data mining, machine learning, and reporting.

This degree prepares students to:

- Assimilate data platforms in the health or healthcare industries to solve health informatics challenges
- Illustrate health data mining skills to strengthen clinical partnerships and benefit stakeholders
- Execute healthcare statistical dynamics of machine learning as they relate to health informatics
- Compose health data science reporting for relevant health informatics audiences

Master of Science in Health Informatics with a Concentration in Health Data Utilization and Analysis

The master's degree concentration in Health Data Utilization and Analysis integrates health informatics and workflows with introductory-level Python and SQL programming to elevate your experience with data from exposure to data analysis. By engaging with this program, you will gain insights into problem solving using Python and SQL, learn data design and protect techniques, and explore considerations for ethical data use.

This degree prepares students to:

- Transform data to information, knowledge, then insight (DIKI) through data integration, predictive analytics, and data visualizations to create healthcare solutions.
- Apply health data mining techniques to make decisions that strengthen clinical partnerships and benefit stakeholders.
- Develop data queries and structured coding to solve health-related data challenges.
- Evaluate the safeguards required to protect data being utilized and analyzed.

Master of Science in Health Informatics with a Concentration in Project Management

The Project Management master's degree concentration is accredited by HIMSS and offered online or on-campus at the University of Denver in the evenings, or in a combination of both, to meet the needs of busy adults. Healthcare technology and data advancements require leaders that can oversee and manage projects. Gain practical experience in project management in healthcare by using the tools and techniques leveraged for large-scale and smaller projects. Healthcare organizations rely on project management to ensure timeline, scope, and budget goals are met while delivering exception patient care, so be prepared with skills needed to deliver. The curriculum aligns with the PMI® Project Management Body of Knowledge.

This degree prepares students to:

- Apply the basic principles of project management to become proficient in the use of project management software
- Demonstrate the use of agile concepts and techniques to deliver complex projects
- Design a comprehensive risk management plan for a project
- Create strategies to manage the complexity inherent in large-scale projects
- Relate project scope to cost, time, and resource requirements
- Develop procurement plans and assess project contracts

Master of Science in Health Informatics with a Concentration in Telehealth and Virtual Care

Advance your leadership and capabilities within the emerging areas of telehealth and virtual care. In this concentration, you will learn how to assess the business and healthcare environments to properly plan, implement, and sustain programs to support care in a virtual environment. Gain a deeper understanding of the social determinants of health (SDOH) that impact patients and staff virtually, technology for telehealth and virtual care, the business strategy and policy behind telehealth and virtual care, and systems planning and development for telehealth and virtual care programs.

This degree prepares students to:

• Analyze systems and processes necessary to deliver telehealth and virtual care services
• Design strategic plans for successful telehealth and virtual care systems
• Investigate the opportunities and barriers to the 4Ps (patient, provider, payor, and populations) with regard to telehealth and virtual care
• Create models for the success of telehealth and virtual care teams
• Analyze risks, impact, and benefit analysis for implementing virtual care

Graduate Certificate in Health Informatics with a Concentration in Health Data Informatics and Analytics

The Health Data Informatics and Analytics certificate is offered online or on-campus at the University of Denver in the evenings, or in a combination of both, to meet the needs of busy adults. This certificate is designed for three principal types of students. This certificate is appropriate for individuals in the health data informatics or analytics field who are currently working beyond their skillset capacity. This certificate seeks to match their skills to the competencies they would like to acquire. These students will benefit from instruction on theory and validation of their on-the-job experiences. Students will also gain additional skills and knowledge in healthcare management through elective coursework. Alternatively, this certificate is appropriate for those who are ready to move to a managerial position and may need a new skillset to make this conversion. Additionally, this certificate is appropriate for individuals with solid business skills looking to transition from another industry into the health industry or healthcare but need support for the move. This certificate will aid in the transition to a health data informatics and analytics position within the healthcare or health industry. To this end, the certificate curriculum is aligned with AHIMA, CAHIIM and HIMSS certification specific core objectives and is accredited by HIMSS. This certificate focuses on three concentrated areas of development. First, students develop a solid base of knowledge about the healthcare delivery in the U.S. within the framework of the "4 Ps": Patients/People, Providers, Payors, and Population. This framework allows students to understand both informatics and analytics related to the process of transforming data into information, knowledge, and then insight (DIKI) along the broad scope that exists in health industry and U.S. healthcare today. Second, students will compare and contrast the similarities and differences between asking and answering research and business questions. Third, students will learn how to collaborate, organize projects, and formulate real-life solutions to existing healthcare industry issues.

Graduate Certificate in Health Informatics with a Concentration in Digital Health

The Digital Health graduate certificate is offered online or on campus at the University of Denver in the evenings, or in a combination of both, to meet the needs of busy adults. This certificate has a set of courses addressing digital health in both the health industry and healthcare delivery systems. The certificate is The certificate is accredited for CAHIIM Digital Health Leader competencies and is accredited by HIMSS. The innovative classes in the concentration cover how to reduce costs and improve access to quality healthcare through technologies that comprise the framework of modern interconnected healthcare. Students stay at the cutting edge of emerging health technology, telehealth, digital, and virtual health with this certificate by learning how technology affects and improves diagnosis, treatment, training, patient records, and financial transactions. You'll gain high-level knowledge of the interoperability of healthcare information systems, the benefits and barriers associated with consumer digital health products, and the evolving use of distance medicine.

Graduate Certificate in Health Informatics with a Concentration in Health Data Science

The Health Data Science graduate certificate is offered completely online to meet the needs of busy adults. In this certificate program accredited by HIMSS, students will learn to leverage health data science tools and applications to achieve business and research outcomes within the health sector. Students will work with real hands-on data science projects using deidentified data from a curated health data repository built with industry partners. Students will learn to optimize data to support evidence- and value-based results and enhance their knowledge in analytics, data science, and machine learning.

Graduate Certificate in Health Informatics with a Concentration in Health Data Utilization and Analysis

The graduate certificate in Health Data Utilization and Analysis integrates health informatics and workflows with introductory-level Python and SQL programming to elevate your experience with data from exposure to data analysis. By engaging with this program, you will gain insights into problem solving using Python and SQL, learn data design and protect techniques, and explore considerations for ethical data use.

Specialized Graduate Certificate in Health Data Informatics and Analytics

The Health Data Informatics and Analytics specialized graduate certificate is offered offered online or on-campus at the University of Denver in the evenings, or in a combination of both, to meet the needs of busy adults. This certificate is designed for three principal types of students. This certificate is appropriate for individuals in the health data informatics or analytics field who are currently working beyond their skillset capacity. This certificate seeks to match their skills to the competencies they would like to acquire and is accredited by HIMS.

These students will benefit from instruction on theory and validation of their on-the-job experiences. Alternatively, this certificate is appropriate for those who are ready to move to a managerial position and may need a new skillset to make this conversion. Additionally, this certificate is appropriate for individuals with solid business skills looking to transition from another industry into the health industry or healthcare but need support for the

move. This certificate will aid in the transition to a health data informatics and analytics position within the healthcare or health industry. To this end, the certificate curriculum is aligned with AHIMA and HIMSS certification specific core objectives. This certificate focuses on three concentrated areas of development. First, students develop a solid base of knowledge about the healthcare delivery in the U.S. within the framework of the "4 Ps": Patients/People, Providers, Payors, and Population. This framework allows students to understand both informatics and analytics related to the process of transforming data into information, knowledge, and then insight (DIKI) along the broad scope that exists in health industry and U.S. healthcare today. Second, students will compare and contrast the similarities and differences between asking and answering research and business questions. Third, students will learn how to collaborate, organize projects, and formulate real-life solutions to existing healthcare industry issues.

Specialized Graduate Certificate in Digital Health

The Digital Health specialized graduate certificate is offered online or on campus at the University of Denver in the evenings, or in a combination of both, to meet the needs of busy adults. The certificate is accredited for CAHIIM Digital Health Leader competencies and is accredited by HIMSS. Special focus is provided on the finance, communication, and leadership skills required to implement digital health initiatives. The innovative classes in the concentration cover how to reduce costs and improve access to quality healthcare through technologies that comprise the framework of modern interconnected healthcare. Students stay at the cutting edge of emerging health technology, telehealth, digital, and virtual health with this certificate by learning how technology affects and improves diagnosis, treatment, training, patient records, and financial transactions. You'll gain high-level knowledge of the interoperability of healthcare information systems, the benefits and barriers associated with consumer digital health products, and the evolving use of distance medicine. Credits earned through this certificate may be applied toward a master's degree in Healthcare Management.

Specialized Graduate Certificate in Health Data Science

The Health Data Science specialized graduate certificate is offered completely online to meet the needs of busy adults. In this specialized certificate program accredited by HIMSS, students will learn to leverage health data science tools and applications to achieve business and research outcomes within the health sector. Students will work with real, hands-on data science projects using deidentified data from a curated health data repository built with industry partners.

Master's Degree Admission

Degree and GPA Requirements

- Bachelor's degree: All graduate applicants must hold an earned baccalaureate from a regionally accredited college or university or the recognized equivalent from an international institution.
- Grade point average: The minimum undergraduate GPA for admission consideration for graduate study at the University of Denver is a cumulative 2.5 on a 4.0 scale or a 2.5 on a 4.0 scale for the last 60 semester credits or 90 quarter credits (approximately two years of work) for the baccalaureate degree. An earned master's degree or higher from a regionally accredited institution supersedes the minimum standards for the baccalaureate. For applicants with graduate coursework but who have not earned a master's degree or higher, the GPA from the graduate work may be used to meet the requirement. The minimum GPA is a cumulative 3.0 on a 4.0 scale for all graduate coursework undertaken.
- Program GPA requirement: The minimum undergraduate GPA for admission consideration for this program is a cumulative 2.5 on a 4.0 scale.

English Language Proficiency Test Score Requirements

The minimum TOEFL/IELTS/C1 Advanced/Duolingo English Test score requirements for this degree program are:

- Minimum TOEFL Score (Internet-based test): 80 with minimum of 20 on each sub-score
- Minimum IELTS Score: 6.5 with minimum of 6.0 on each band score
- Minimum C1 Advanced Score: 176
- Minimum Duolingo English Test Score: 115 with individual subscore minimum of 105 for Literacy, Comprehension, and Conversation and minimum subscore of 95 for Production

English Conditional Admission: No, this program does not offer English Conditional Admission.

Master's Degree Programs

Master of Science in Health Informatics with a Concentration in Digital Health

Code	Title	Credits
Core coursework requirements		
HINF 4010	Health Informatics Communication	4
HINF 4020	Healthcare Workflow and Gap Analysis	4
HINF 4030	Healthcare Finance	4
HINF 4650	Healthcare Project Management and Professionalism	4
HINF 4900	Experiential Learning in Health Informatics	4
HINF 4901	Capstone Project	4
or HINF 4902	Capstone Seminar	

Concentration requirements		
HINF 4301	Foundations of Digital Health	4
HINF 4310	Healthcare Information Systems	4
HINF 4315	Digital and Virtual Health	4
HINF 4325	Values and Outcomes in Digital Health	4
HINF 4335	Healthcare Cybersecurity	4
Elective requirements (Choose one course)		**4**
Total Credits		**48**

 Minimum number of credits required: 48

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Master of Science in Health Informatics with a Concentration in Health Data Informatics and Analytics

Code	**Title**	**Credits**
Core coursework requirements		
HINF 4010	Health Informatics Communication	4
HINF 4020	Healthcare Workflow and Gap Analysis	4
HINF 4030	Healthcare Finance	4
HINF 4650	Healthcare Project Management and Professionalism	4
HINF 4900	Experiential Learning in Health Informatics	4
HINF 4901	Capstone Project	4
or HINF 4902	Capstone Seminar	
Concentration requirements		
HINF 4600	Healthcare Data and Delivery by Perspective	4
HINF 4610	Healthcare Ethics and Biostatistics	4
HINF 4620	Healthcare Methods and Programming	4
HINF 4630	Healthcare Data Mining, Integration and Interpretation	4
HINF 4640	Healthcare Database Applications	4
Elective requirements (Choose one course)		**4**
Total Credits		**48**

 Minimum number of credits required: 48

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Master of Science in Health Informatics with a Concentration in Health Data Science

Code	**Title**	**Credits**
Core coursework requirements		
HINF 4010	Health Informatics Communication	4
HINF 4020	Healthcare Workflow and Gap Analysis	4
HINF 4030	Healthcare Finance	4
HINF 4650	Healthcare Project Management and Professionalism	4
HINF 4900	Experiential Learning in Health Informatics	4
HINF 4901	Capstone Project	4
or HINF 4902	Capstone Seminar	
Concentration requirements		
HINF 4210	Data Platforms in Healthcare	4
HINF 4220	Health Data Mining	4
HINF 4230	Healthcare Statistical Dynamics of Machine Learning	4
HINF 4240	Health Data Science Reporting	4

Elective requirements (Choose two courses)		**8**
Total Credits		**48**

Minimum number of credits required: 48

Individuals enrolling in this program are encouraged to have experience with programming languages such as Python. This includes a fundamental understanding of programming terminology and concepts, reading and writing code, and designing algorithms for problem-solving.

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Master of Science in Health Informatics with a Concentration in Health Data Utilization and Analysis

Code	Title	Credits
Core coursework requirements		
HINF 4010	Health Informatics Communication	4
HINF 4020	Healthcare Workflow and Gap Analysis	4
HINF 4030	Healthcare Finance	4
HINF 4650	Healthcare Project Management and Professionalism	4
HINF 4900	Experiential Learning in Health Informatics	4
HINF 4901	Capstone Project	4
or HINF 4902	Capstone Seminar	
Concentration requirements		
ICT 4007	Creative Problem Solving and Programming Concepts	4
HINF 4210	Data Platforms in Healthcare	4
HINF 4335	Healthcare Cybersecurity	4
HINF 4610	Healthcare Ethics and Biostatistics	4
HINF 4620	Healthcare Methods and Programming	4
HINF 4630	Healthcare Data Mining, Integration and Interpretation	4
Total Credits		**48**

Minimum number of credits required: 48

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Master of Science in Health Informatics with a Concentration in Project Management

Code	Title	Credits
Core coursework requirements		
HINF 4010	Health Informatics Communication	4
HINF 4020	Healthcare Workflow and Gap Analysis	4
HINF 4030	Healthcare Finance	4
HINF 4650	Healthcare Project Management and Professionalism	4
HINF 4900	Experiential Learning in Health Informatics	4
HINF 4901	Capstone Project	4
or HINF 4902	Capstone Seminar	
Concentration requirements		
ICT 4100	Principles of Project Management	4
ICT 4105	Project Contracts and Procurement	4
ICT 4110	Project Risk and Quality Management	4
ICT 4170	Agile Techniques and Practices in Project Management	4
Electives (Choose two courses)		**8**
Total Credits		**48**

Minimum number of credits required: 48

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Graduate Certificate Programs

Graduate Certificate in Health Informatics with a Concentration in Digital Health

Code	Title	Credits
Concentration requirements		
HINF 4301	Foundations of Digital Health	4
HINF 4310	Healthcare Information Systems	4
HINF 4315	Digital and Virtual Health	4
HINF 4325	Values and Outcomes in Digital Health	4
HINF 4335	Healthcare Cybersecurity	4
Elective requirements (Choose one course)		**4**
Total Credits		**24**

Minimum number of credits required: 24

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Graduate Certificate in Health Informatics with a Concentration in Health Data Informatics and Analytics

Code	Title	Credits
Concentration requirements		
HINF 4600	Healthcare Data and Delivery by Perspective	4
HINF 4610	Healthcare Ethics and Biostatistics	4
HINF 4620	Healthcare Methods and Programming	4
HINF 4630	Healthcare Data Mining, Integration and Interpretation	4
HINF 4640	Healthcare Database Applications	4
Elective requirements (Choose one course)		**4**
Total Credits		**24**

Minimum number of credits required: 24

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Graduate Certificate in Health Informatics with a Concentration in Health Data Science

Code	Title	Credits
Concentration requirements		
HINF 4210	Data Platforms in Healthcare	4
HINF 4220	Health Data Mining	4
HINF 4230	Healthcare Statistical Dynamics of Machine Learning	4
HINF 4240	Health Data Science Reporting	4
Elective requirements (Choose two courses)		**8**
Total Credits		**24**

Minimum number of credits required: 24

Individuals enrolling in this program are encouraged to have experience with programming languages such as Python. This includes a fundamental understanding of programming terminology and concepts, reading and writing code, and designing algorithms for problem-solving.

Students will work with their Academic Advisor to determine the best set of courses to choose for their electives.

Specialized Graduate Certificate Programs

Specialized Graduate Certificate in Digital Health

Code	Title	Credits
HINF 4301	Foundations of Digital Health	4
HINF 4310	Healthcare Information Systems	4
HINF 4315	Digital and Virtual Health	4
HINF 4325	Values and Outcomes in Digital Health	4
Total Credits		**16**

Specialized Graduate Certificate in Health Data Informatics and Analytics

Code	Title	Credits
HINF 4600	Healthcare Data and Delivery by Perspective	4
HINF 4610	Healthcare Ethics and Biostatistics	4
HINF 4620	Healthcare Methods and Programming	4
HINF 4630	Healthcare Data Mining, Integration and Interpretation	4
Total Credits		**16**

Specialized Graduate Certificate in Health Data Science

Code	Title	Credits
HINF 4210	Data Platforms in Healthcare	4
HINF 4220	Health Data Mining	4
HINF 4230	Healthcare Statistical Dynamics of Machine Learning	4
HINF 4240	Health Data Science Reporting	4
Total Credits		**16**

Individuals enrolling in this program are encouraged to have experience with programming languages such as Python. This includes a fundamental understanding of programming terminology and concepts, reading and writing code, and designing algorithms for problem-solving.

HINF 4010 Health Informatics Communication (4 Credits)
This course will provide students with a foundational background in organizational communication strategies, develop knowledge and understanding of healthcare communication standards and policies and equip students with practical knowledge of current health informatics communication tools and trends. The student will contextualize the role of Informatics and Health Informatics/IT professionals through the development of course projects. Students will evaluate current industry communication modalities, construct plans to assess and improve communication, and advise stakeholders on how to successfully implement communication plans to achieve success in Health Informatics/IT projects. Through this process, students learn to bridge gaps between Health Informatics/IT professionals, clinicians, and health leaders.

HINF 4020 Healthcare Workflow and Gap Analysis (4 Credits)
The alignment between the steps of a business or patient care transaction in an information system and how that work is done significantly impacts the performance of that organization. It can also impact the quality of data gathered using information system resources in a healthcare organization. This course will provide the learner with a critical view of the interaction between operational processes in a healthcare organization and the information technology used to carry out those processes. The course will begin with an introduction to the System Development Life Cycle ("SDLC") and how work processes interact with technology. Students will review the skills needed to critically assess processes and identify technology needs. The course will wrap up with a review of operational process analysis with the design of health information systems resources.

HINF 4030 Healthcare Finance (4 Credits)
This course gives students a skills-based grounding in the financial management in healthcare organizations operating in the United States. Students will gain a broad overview of the business of healthcare in the U.S., including interpretation of financial statements, budgeting, operational analysis, expense management issues, revenues, and payment systems used in the current U.S. healthcare system. The course will use a case-based approach where students will demonstrate mastery of financial management skills through application of knowledge to real-life scenarios from the industry.

HINF 4210 Data Platforms in Healthcare (4 Credits)
Data Platforms in Healthcare focuses on widely used data platforms in data collection, storage retrieval, and use in healthcare and healthy-industry settings. Students will learn the flow of data from data entry to data storage, and they will learn to query, process, and present healthcare data for actionable use. Students will also learn common pitfalls of healthcare data solutions and the legal restrictions involved with personal healthcare information. Recommended prerequisite: ICT 4007 (if student has no prior programming experience).

HINF 4220 Health Data Mining (4 Credits)
Focusing on creating problem statements and research questions, this course allows you to hone skills related to accurate health data mining. Learn to create clinical partnerships with key stakeholders concerning data in Health Informatics/IT projects while gleaning valuable insight from large health data repositories.

HINF 4230 Healthcare Statistical Dynamics of Machine Learning (4 Credits)
HINF 4230 focuses on data cleaning, statistical analysis, and machine learning using healthcare data. Students will use Python to clean, prepare, and interpret a large dataset and then train and evaluate a machine learning model. Finally, students will debug their models and iterate to make improvements.

HINF 4240 Health Data Science Reporting (4 Credits)
This course will focus on best practices for health data science reporting to improve healthcare into the future. The learner will explore various ways to develop effective reports, inform healthcare leaders, and make appropriate recommendations. Upon completion of this course, students will understand the difference between data and how information provides key insights that allow healthcare leaders to draw conclusions, make decisions, and improve clinical and business outcomes. Preferred prerequisite: HINF 4210.

HINF 4301 Foundations of Digital Health (4 Credits)
This foundational course provides a working knowledge of key HIT definitions, concepts, and relevant advancing forms of technology. It encourages students to review the changes to HIT and evaluate the growth of these systems into the current and future forms of digital health tools. While this course is not designed to turn students into network administrators or software developers; it will equip students to become an active and valuable participant – or even a team leader – in the evaluation, selection, implementation, and ongoing operation of health information systems.

HINF 4310 Healthcare Information Systems (4 Credits)
Electronic health records systems (electronic medical records (EMRs), electronic health records (EHRs), personal health records (PHRs), and health information exchanges (HIEs)) are all the buzz these days, yet for the past 30 years the healthcare sector has clung to paper records, file folders, and clipboards. This course will explore the technical and controversial aspects of healthcare information technology in general, and the specific factors involving evaluation and adoption of EMR systems. The course also covers the fundamental components of modern electronic records systems and reviews their impact on both business and clinical functions. Key areas of interoperability, interfaces, and standards will be introduced. The course will be practical and thought-provoking as it emphasizes critical thinking and the synthesis of ideas from multiple sources and perspectives. Participants will be challenged to develop their own viewpoints and opinions, substantiated by the published work of those who are thought leaders in the field of HIT, as well as the participants' own experiences.

HINF 4315 Digital and Virtual Health (4 Credits)
With the widespread availability of health-oriented digital and virtual devices and software (apps), healthcare organizations are shifting their approaches to recognize how patients wish to communicate, manage their health, and share their health information. The shift in digital and virtual health is designed to improve healthcare access and quality—particularly in underserved populations, geographies, and specialties. This course will present the current and emerging digital and virtual health services, as well as the benefits and drawbacks of these technologies. This course will address various forms of telehealth, apps, portable devices, and remote monitoring strategies, as well as the role of artificial and augmented intelligence in enhancing digital and virtual experiences. After a broad review of the digital and virtual health field, this course will focus on evaluating, sustaining, and leading a digital or virtual program. Each lecture will discuss regulatory issues such as privacy, security, FDA review/approval, and when digital and virtual health services can be reimbursed. In addition to these regulatory issues, the course will instruct how to conduct a needs assessment, evaluate digital and virtual health products, implement different business models, and evaluate best practices for implementation and adoption. Preferred Prerequisite: HINF 4301.

HINF 4325 Values and Outcomes in Digital Health (4 Credits)
This course covers the major healthcare information technologies and topics other than electronic health records systems. Electronic health records systems represent a large focus in healthcare technology; however, many other important systems form the complete framework of modern connected healthcare. These include electronic practice management (EPM/PMS) systems, scheduling, billing, diagnostics/labs, reporting, payment interfaces, and business intelligence in healthcare. This course focuses on the fundamentals of how to be an analyst of health IT technology. Preferred prerequisite: HINF 4301.

HINF 4335 Healthcare Cybersecurity (4 Credits)
This course will introduce students to information security risks facing the healthcare industry. Students will learn how to protect healthcare organizations and their patients' data better. Students will learn about recent security breaches, the impact of those breaches on healthcare organizations, and all of the key players involved. This course also covers the evolution of healthcare IT and the continuously evolving risk and regulatory landscape. Students will explore regulations of HIPAA, NIST/ONC, HITECH, and Meaningful Use and how they relate to day-to-day operations in healthcare organizations. Additionally, this course will prepare students to support information security initiatives in order to protect the organization while furthering the advancement of healthcare IT capabilities. This is not a technical course; however, the course covers how security is impacted by technology and what one must do across technology to secure healthcare systems, organizations and patients. Preferred prerequisite: HINF 4301.

HINF 4600 Healthcare Data and Delivery by Perspective (4 Credits)
This course evaluates the environment of the U.S. healthcare delivery system and introduces the 4P (patient, provider, payer, population) perspective framework. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, towards the payer, and evolving into population health. Students will learn about the associated data that is generated from the patient as a consumer, from the provider through clinical operations, from the payer perspective, and finally how all of these contribute toward population health data. This course will cover the basics of U.S. healthcare research and clinical intervention, and students will have the ability to model the conceptual as well as practical application of health informatics.

HINF 4610 Healthcare Ethics and Biostatistics (4 Credits)
This course discusses research investigator training and outlines the progression of the Institutional Review Board (IRB) process. In addition, this IRB process will be compared with the business process improvement cycle. Health Insurance Portability and Accountability Act (HIPAA) as well as data governance issues are surveyed from the patient, provider, payer, and population perspectives. The connections between these topics and ethics are explored, and the principles of biostatistics are discussed. Common statistical packages used within healthcare research and business applications are covered, and this course concludes with an analysis of resulting ethical implications of short- and long-term healthcare data. Preferred prerequisite: HINF 4600.

HINF 4620 Healthcare Methods and Programming (4 Credits)
This course presents the basic study designs of epidemiology and illustrates the field's benefit to the healthcare industry. Randomized control trials (RCT) through correlation studies are explained through case studies as well as practical application. Informatics tools such as machine learning, clinical decision support, and natural language processing (NLP) are categorized with respect to their relative positions in the 4P (patient, provider, payer, population) perspective framework. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, progressing on to the payer, and evolving into population health. This course concludes with the many benefits of auditing as a check and balance for healthcare methods and programming. Preferred prerequisite: HINF 4600.

HINF 4630 Healthcare Data Mining, Integration and Interpretation (4 Credits)
This course explores available public healthcare data sets and the data mining process. In addition, this course articulates the value of mapping relationships between data points and workflows. This process determines the level of integration of disparate data sources and is explored through the 4P (patient, provider, payer, population) perspectives. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, progressing on to the payer, and evolving into population health. Once the data sources are integrated, the focus becomes how to turn this data to into information, knowledge, and insight. This course wraps up by exploring both business and research options for interpreting data through visualizations and predictive analytics. Preferred prerequisite: HINF 4600.

HINF 4640 Healthcare Database Applications (4 Credits)
This course covers the growing functions of security in healthcare data and specifically elaborates on the vulnerabilities and emerging solutions for dealing with data once it is stored. Database architecture is surveyed, which transitions into an exploration of terminologies and standards and how these impact interoperability of data in warehouses. A significant portion of this course focuses on the specifics of medical coding and how coding is affected by the 4P perspectives. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, progressing on to the payer, and evolving into population health. The course wraps up with a compilation of Structured Query Language (SQL) capabilities and a study of the influence of their practical application. Prerequisite: recommended HINF 4600.

HINF 4650 Healthcare Project Management and Professionalism (4 Credits)
The course is designed to simultaneously teach project management concepts while preparing a student to operationalize a healthcare project. Students will analyze business problems healthcare organizations are facing to properly scope and plan a project. Students will also work on stakeholder engagement and project documentation development.

HINF 4701 Topics in Health Informatics (1-4 Credits)
This is an advanced special topics seminar course. The focus is on specialized areas of interest. Topics courses may be used as electives within the Health Informatics degree and certificates, and, with advance approval from Academic Director, may substitute for core courses in the degree or certificate programs.

HINF 4810 Survey of Health Industry Artificial Intelligence (4 Credits)
Artificial Intelligence (AI) is "the capability of a machine to imitate intelligent human behavior." AI is fast becoming a major player in the health and healthcare industries. In addition to having positive impacts in traditional medical areas such as radiology, pathology, EHR systems, oncology, and cardiology, AI is increasingly being used in the health industry to bridge gaps in the healthcare delivery systems. This course will provide students with the tools to understand how Artificial Intelligence platforms sort and learn from the immense amount of data available in the healthcare field. Students will engage in virtual learning as well as project-based learning offering the next generation of health industry professionals the skills to leverage massive amounts of data into meaningful knowledge.

HINF 4825 Technology and Applications for Telehealth and Virtual Care Success (4 Credits)
This course investigates the technology required for virtual care and technological concepts to advance virtual care models. This will include virtual care applications, telemonitoring systems, and technology concepts to include artificial intelligence, machine learning, informational robotics/applications.

HINF 4835 Design and Implementation of Telehealth and Virtual Care Systems (4 Credits)
Leaders in telehealth and virtual care settings must learn the steps to implementation when designing telehealth and virtual care systems. Students will explore the factors that impact the success of telehealth and virtual care programming, including barriers to care, the social determinants of health (SDOH), and conducting risk and benefit analysis. Students will develop the skills needed to create a telehealth and virtual care plan that builds on the development of a business case to support the needs of the community it serves.

HINF 4900 Experiential Learning in Health Informatics (4 Credits)
This course is an opportunity to participate in experiential learning by connecting academic research with a real-world healthcare management or health informatics problem. Students may take this class either early in their degree program as an introduction to healthcare or health informatics, or later in the program as a prerequisite for their upcoming Capstone experience. First, students will conduct informational interviews with healthcare management and health informatics instructors to learn more about a chosen problem. Those taking this course as an introduction will learn key skills necessary to identify an independent research project topic, formulate a research question with a business, healthcare or health industry application, investigate research methodologies, explore the requirements for human subjects research through the Institutional Review Board (IRB), and draft a project proposal. Students preparing for their Capstone experience (all health informatics students and some healthcare management students) will prepare a Capstone project proposal according to approvable structure and deliverable guidelines. They will choose and schedule a meeting with their Capstone Advisor, select a research topic, formulate a research question with an industry application, develop a thesis statement, choose appropriate project methodologies, and draft a project proposal that will meet appropriate ethics and compliance requirements for human subjects research, and submit their proposal to the IRB for approval.

HINF 4901 Capstone Project (4 Credits)
The Capstone Project provides students the opportunity to research a topic, problem, or issue within their field of study, and work individually with a Capstone advisor. Similar in weight to a thesis, but more flexible, this final project will synthesize and apply core concepts acquired from the program. The student will select an appropriate Capstone advisor who is knowledgeable in the field of study to work closely with and whom can guide the research project. Evaluation will be focused on the quality and professionalism of applied research and writing; critical and creative thinking; problem-solving skills; knowledge of research design, method, and implementation; and contribution to the field and topic of study. Please see the Capstone Guidelines for additional details. Prerequisites: A Capstone Proposal that has been approved by both the Capstone Advisor and the Academic Director, acceptance as a degree candidate, completion of at least 40 quarter-hours (including all core courses) with a cumulative GPA of 3.0 or better.

HINF 4902 Capstone Seminar (4 Credits)
The Capstone Seminar is a graduate seminar in which students utilize the knowledge and skills gained through the degree program to create a culminating work that critically addresses a problem in their degree field of study. The students produce a Capstone of 7000-8000 words that presents a position on a relevant problem, supports the position with professional and academic literature, analyzes and tests the proposed solution, and discusses the findings as related to the field of study. The seminar is dependent upon quality, collegial discussion, and feedback of students' research and work products, under the facilitation of a faculty member. The course structure guides the students through the process of independent, secondary research and writing of a Capstone. No primary research is allowed. Students generate the course content through ongoing discussion and peer feedback on the Capstone process and individual topic areas under investigation. Students professionally and academically communicate through written work and oral presentation. Students must have: Acceptance as a degree candidate, completion of at least 40 quarter-hours (including all core courses) with a cumulative GPA of 3.0 or better. Students must complete the Capstone Seminar in one quarter; no incomplete grades are assigned.

HINF 4980 Internship (0-4 Credits)
The Health Informatics Internship is designed to offer students a purposeful experience in a practical, industry related setting. The internship is an individualized learning experience. A training plan is created for each student in conjunction with the internship site supervisor to provide experiences related to the skills and knowledge covered in the certificate and master's programs as well as professional goals. Students are responsible for finding their own internship site and proposing their internship ideas. University College will send notification to all Healthcare students if they hear of internship possibilities. Students may also work through the DU career center, to explore opportunities for internship experiences.

HINF 4991 Independent Study (1-4 Credits)
This is an advanced course for students wishing to pursue an independent course of study. The student must be accepted in a degree program, have earned a grade point average of 3.0 or better, obtained the approval of the department director, and have completed the Independent Study form and filed the form with all appropriate offices before registering for the independent study. Independent Study is offered only on a for-credit basis.

Courses

HINF 4010 Health Informatics Communication (4 Credits)
This course will provide students with a foundational background in organizational communication strategies, develop knowledge and understanding of healthcare communication standards and policies and equip students with practical knowledge of current health informatics communication tools and trends. The student will contextualize the role of Informatics and Health Informatics/IT professionals through the development of course projects. Students will evaluate current industry communication modalities, construct plans to assess and improve communication, and advise stakeholders on how to successfully implement communication plans to achieve success in Health Informatics/IT projects. Through this process, students learn to bridge gaps between Health Informatics/IT professionals, clinicians, and health leaders.

HINF 4020 Healthcare Workflow and Gap Analysis (4 Credits)
The alignment between the steps of a business or patient care transaction in an information system and how that work is done significantly impacts the performance of that organization. It can also impact the quality of data gathered using information system resources in a healthcare organization. This course will provide the learner with a critical view of the interaction between operational processes in a healthcare organization and the information technology used to carry out those processes. The course will begin with an introduction to the System Development Life Cycle ("SDLC") and how work processes interact with technology. Students will review the skills needed to critically assess processes and identify technology needs. The course will wrap up with a review of operational process analysis with the design of health information systems resources.

HINF 4030 Healthcare Finance (4 Credits)
This course gives students a skills-based grounding in the financial management in healthcare organizations operating in the United States. Students will gain a broad overview of the business of healthcare in the U.S., including interpretation of financial statements, budgeting, operational analysis, expense management issues, revenues, and payment systems used in the current U.S. healthcare system. The course will use a case-based approach where students will demonstrate mastery of financial management skills through application of knowledge to real-life scenarios from the industry.

HINF 4210 Data Platforms in Healthcare (4 Credits)
Data Platforms in Healthcare focuses on widely used data platforms in data collection, storage retrieval, and use in healthcare and healthy-industry settings. Students will learn the flow of data from data entry to data storage, and they will learn to query, process, and present healthcare data for actionable use. Students will also learn common pitfalls of healthcare data solutions and the legal restrictions involved with personal healthcare information. Recommended prerequisite: ICT 4007 (if student has no prior programming experience).

HINF 4220 Health Data Mining (4 Credits)
Focusing on creating problem statements and research questions, this course allows you to hone skills related to accurate health data mining. Learn to create clinical partnerships with key stakeholders concerning data in Health Informatics/IT projects while gleaning valuable insight from large health data repositories.

HINF 4230 Healthcare Statistical Dynamics of Machine Learning (4 Credits)
HINF 4230 focuses on data cleaning, statistical analysis, and machine learning using healthcare data. Students will use Python to clean, prepare, and interpret a large dataset and then train and evaluate a machine learning model. Finally, students will debug their models and iterate to make improvements.

HINF 4240 Health Data Science Reporting (4 Credits)
This course will focus on best practices for health data science reporting to improve healthcare into the future. The learner will explore various ways to develop effective reports, inform healthcare leaders, and make appropriate recommendations. Upon completion of this course, students will understand the difference between data and how information provides key insights that allow healthcare leaders to draw conclusions, make decisions, and improve clinical and business outcomes. Preferred prerequisite: HINF 4210.

HINF 4301 Foundations of Digital Health (4 Credits)
This foundational course provides a working knowledge of key HIT definitions, concepts, and relevant advancing forms of technology. It encourages students to review the changes to HIT and evaluate the growth of these systems into the current and future forms of digital health tools. While this course is not designed to turn students into network administrators or software developers; it will equip students to become an active and valuable participant – or even a team leader – in the evaluation, selection, implementation, and ongoing operation of health information systems.

HINF 4310 Healthcare Information Systems (4 Credits)
Electronic health records systems (electronic medical records (EMRs), electronic health records (EHRs), personal health records (PHRs), and health information exchanges (HIEs)) are all the buzz these days, yet for the past 30 years the healthcare sector has clung to paper records, file folders, and clipboards. This course will explore the technical and controversial aspects of healthcare information technology in general, and the specific factors involving evaluation and adoption of EMR systems. The course also covers the fundamental components of modern electronic records systems and reviews their impact on both business and clinical functions. Key areas of interoperability, interfaces, and standards will be introduced. The course will be practical and thought-provoking as it emphasizes critical thinking and the synthesis of ideas from multiple sources and perspectives. Participants will be challenged to develop their own viewpoints and opinions, substantiated by the published work of those who are thought leaders in the field of HIT, as well as the participants' own experiences.

HINF 4315 Digital and Virtual Health (4 Credits)
With the widespread availability of health-oriented digital and virtual devices and software (apps), healthcare organizations are shifting their approaches to recognize how patients wish to communicate, manage their health, and share their health information. The shift in digital and virtual health is designed to improve healthcare access and quality—particularly in underserved populations, geographies, and specialties. This course will present the current and emerging digital and virtual health services, as well as the benefits and drawbacks of these technologies. This course will address various forms of telehealth, apps, portable devices, and remote monitoring strategies, as well as the role of artificial and augmented intelligence in enhancing digital and virtual experiences. After a broad review of the digital and virtual health field, this course will focus on evaluating, sustaining, and leading a digital or virtual program. Each lecture will discuss regulatory issues such as privacy, security, FDA review/approval, and when digital and virtual health services can be reimbursed. In addition to these regulatory issues, the course will instruct how to conduct a needs assessment, evaluate digital and virtual health products, implement different business models, and evaluate best practices for implementation and adoption. Preferred Prerequisite: HINF 4301.

HINF 4325 Values and Outcomes in Digital Health (4 Credits)
This course covers the major healthcare information technologies and topics other than electronic health records systems. Electronic health records systems represent a large focus in healthcare technology; however, many other important systems form the complete framework of modern connected healthcare. These include electronic practice management (EPM/PMS) systems, scheduling, billing, diagnostics/labs, reporting, payment interfaces, and business intelligence in healthcare. This course focuses on the fundamentals of how to be an analyst of health IT technology. Preferred prerequisite: HINF 4301.

HINF 4335 Healthcare Cybersecurity (4 Credits)
This course will introduce students to information security risks facing the healthcare industry. Students will learn how to protect healthcare organizations and their patients' data better. Students will learn about recent security breaches, the impact of those breaches on healthcare organizations, and all of the key players involved. This course also covers the evolution of healthcare IT and the continuously evolving risk and regulatory landscape. Students will explore regulations of HIPAA, NIST/ONC, HITECH, and Meaningful Use and how they relate to day-to-day operations in healthcare organizations. Additionally, this course will prepare students to support information security initiatives in order to protect the organization while furthering the advancement of healthcare IT capabilities. This is not a technical course; however, the course covers how security is impacted by technology and what one must do across technology to secure healthcare systems, organizations and patients. Preferred prerequisite: HINF 4301.

HINF 4600 Healthcare Data and Delivery by Perspective (4 Credits)
This course evaluates the environment of the U.S. healthcare delivery system and introduces the 4P (patient, provider, payer, population) perspective framework. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, towards the payer, and evolving into population health. Students will learn about the associated data that is generated from the patient as a consumer, from the provider through clinical operations, from the payer perspective, and finally how all of these contribute toward population health data. This course will cover the basics of U.S. healthcare research and clinical intervention, and students will have the ability to model the conceptual as well as practical application of health informatics.

HINF 4610 Healthcare Ethics and Biostatistics (4 Credits)
This course discusses research investigator training and outlines the progression of the Institutional Review Board (IRB) process. In addition, this IRB process will be compared with the business process improvement cycle. Health Insurance Portability and Accountability Act (HIPAA) as well as data governance issues are surveyed from the patient, provider, payer, and population perspectives. The connections between these topics and ethics are explored, and the principles of biostatistics are discussed. Common statistical packages used within healthcare research and business applications are covered, and this course concludes with an analysis of resulting ethical implications of short- and long-term healthcare data. Preferred prerequisite: HINF 4600.

HINF 4620 Healthcare Methods and Programming (4 Credits)
This course presents the basic study designs of epidemiology and illustrates the field's benefit to the healthcare industry. Randomized control trials (RCT) through correlation studies are explained through case studies as well as practical application. Informatics tools such as machine learning, clinical decision support, and natural language processing (NLP) are categorized with respect to their relative positions in the 4P (patient, provider, payer, population) perspective framework. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, progressing on to the payer, and evolving into population health. This course concludes with the many benefits of auditing as a check and balance for healthcare methods and programming. Preferred prerequisite: HINF 4600.

HINF 4630 Healthcare Data Mining, Integration and Interpretation (4 Credits)
This course explores available public healthcare data sets and the data mining process. In addition, this course articulates the value of mapping relationships between data points and workflows. This process determines the level of integration of disparate data sources and is explored through the 4P (patient, provider, payer, population) perspectives. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, progressing on to the payer, and evolving into population health. Once the data sources are integrated, the focus becomes how to turn this data to into information, knowledge, and insight. This course wraps up by exploring both business and research options for interpreting data through visualizations and predictive analytics. Preferred prerequisite: HINF 4600.

HINF 4640 Healthcare Database Applications (4 Credits)
This course covers the growing functions of security in healthcare data and specifically elaborates on the vulnerabilities and emerging solutions for dealing with data once it is stored. Database architecture is surveyed, which transitions into an exploration of terminologies and standards and how these impact interoperability of data in warehouses. A significant portion of this course focuses on the specifics of medical coding and how coding is affected by the 4P perspectives. This framework is generated from the natural flow of healthcare delivery starting with the patient, moving to the provider, progressing on to the payer, and evolving into population health. The course wraps up with a compilation of Structured Query Language (SQL) capabilities and a study of the influence of their practical application. Prerequisite: recommended HINF 4600.

HINF 4650 Healthcare Project Management and Professionalism (4 Credits)
The course is designed to simultaneously teach project management concepts while preparing a student to operationalize a healthcare project. Students will analyze business problems healthcare organizations are facing to properly scope and plan a project. Students will also work on stakeholder engagement and project documentation development.

HINF 4701 Topics in Health Informatics (1-4 Credits)
This is an advanced special topics seminar course. The focus is on specialized areas of interest. Topics courses may be used as electives within the Health Informatics degree and certificates, and, with advance approval from Academic Director, may substitute for core courses in the degree or certificate programs.

HINF 4810 Survey of Health Industry Artificial Intelligence (4 Credits)
Artificial Intelligence (AI) is "the capability of a machine to imitate intelligent human behavior." AI is fast becoming a major player in the health and healthcare industries. In addition to having positive impacts in traditional medical areas such as radiology, pathology, EHR systems, oncology, and cardiology, AI is increasingly being used in the health industry to bridge gaps in the healthcare delivery systems. This course will provide students with the tools to understand how Artificial Intelligence platforms sort and learn from the immense amount of data available in the healthcare field. Students will engage in virtual learning as well as project-based learning offering the next generation of health industry professionals the skills to leverage massive amounts of data into meaningful knowledge.

HINF 4825 Technology and Applications for Telehealth and Virtual Care Success (4 Credits)
This course investigates the technology required for virtual care and technological concepts to advance virtual care models. This will include virtual care applications, telemonitoring systems, and technology concepts to include artificial intelligence, machine learning, informational robotics/ applications.

HINF 4835 Design and Implementation of Telehealth and Virtual Care Systems (4 Credits)
Leaders in telehealth and virtual care settings must learn the steps to implementation when designing telehealth and virtual care systems. Students will explore the factors that impact the success of telehealth and virtual care programming, including barriers to care, the social determinants of health (SDOH), and conducting risk and benefit analysis. Students will develop the skills needed to create a telehealth and virtual care plan that builds on the development of a business case to support the needs of the community it serves.

HINF 4900 Experiential Learning in Health Informatics (4 Credits)
This course is an opportunity to participate in experiential learning by connecting academic research with a real-world healthcare management or health informatics problem. Students may take this class either early in their degree program as an introduction to healthcare or health informatics, or later in the program as a prerequisite for their upcoming Capstone experience. First, students will conduct informational interviews with healthcare management and health informatics instructors to learn more about a chosen problem. Those taking this course as an introduction will learn key skills necessary to identify an independent research project topic, formulate a research question with a business, healthcare or health industry application, investigate research methodologies, explore the requirements for human subjects research through the Institutional Review Board (IRB), and draft a project proposal. Students preparing for their Capstone experience (all health informatics students and some healthcare management students) will prepare a Capstone project proposal according to approvable structure and deliverable guidelines. They will choose and schedule a meeting with their Capstone Advisor, select a research topic, formulate a research question with an industry application, develop a thesis statement, choose appropriate project methodologies, and draft a project proposal that will meet appropriate ethics and compliance requirements for human subjects research, and submit their proposal to the IRB for approval.

HINF 4901 Capstone Project (4 Credits)
The Capstone Project provides students the opportunity to research a topic, problem, or issue within their field of study, and work individually with a Capstone advisor. Similar in weight to a thesis, but more flexible, this final project will synthesize and apply core concepts acquired from the program. The student will select an appropriate Capstone advisor who is knowledgeable in the field of study to work closely with and whom can guide the research project. Evaluation will be focused on the quality and professionalism of applied research and writing; critical and creative thinking; problem-solving skills; knowledge of research design, method, and implementation; and contribution to the field and topic of study. Please see the Capstone Guidelines for additional details. Prerequisites: A Capstone Proposal that has been approved by both the Capstone Advisor and the Academic Director, acceptance as a degree candidate, completion of at least 40 quarter-hours (including all core courses) with a cumulative GPA of 3.0 or better.

HINF 4902 Capstone Seminar (4 Credits)
The Capstone Seminar is a graduate seminar in which students utilize the knowledge and skills gained through the degree program to create a culminating work that critically addresses a problem in their degree field of study. The students produce a Capstone of 7000-8000 words that presents a position on a relevant problem, supports the position with professional and academic literature, analyzes and tests the proposed solution, and discusses the findings as related to the field of study. The seminar is dependent upon quality, collegial discussion, and feedback of students' research and work products, under the facilitation of a faculty member. The course structure guides the students through the process of independent, secondary research and writing of a Capstone. No primary research is allowed. Students generate the course content through ongoing discussion and peer feedback on the Capstone process and individual topic areas under investigation. Students professionally and academically communicate through written work and oral presentation. Students must have: Acceptance as a degree candidate, completion of at least 40 quarter-hours (including all core courses) with a cumulative GPA of 3.0 or better. Students must complete the Capstone Seminar in one quarter; no incomplete grades are assigned.

HINF 4980 Internship (0-4 Credits)
The Health Informatics Internship is designed to offer students a purposeful experience in a practical, industry related setting. The internship is an individualized learning experience. A training plan is created for each student in conjunction with the internship site supervisor to provide experiences related to the skills and knowledge covered in the certificate and master's programs as well as professional goals. Students are responsible for finding their own internship site and proposing their internship ideas. University College will send notification to all Healthcare students if they hear of internship possibilities. Students may also work through the DU career center, to explore opportunities for internship experiences.

HINF 4991 Independent Study (1-4 Credits)
This is an advanced course for students wishing to pursue an independent course of study. The student must be accepted in a degree program, have earned a grade point average of 3.0 or better, obtained the approval of the department director, and have completed the Independent Study form and filed the form with all appropriate offices before registering for the independent study. Independent Study is offered only on a for-credit basis.