

# Healthcare Informatics (HCI)

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## Courses

### **HCI 513. Introduction to Healthcare Informatics. 3 Hours.**

Discussion of key concepts and practices of healthcare informatics on how information technology supports patient care and health care organizations. Introduce the topics of ethics, electronic health records, information infrastructure, data and information, basic research design, interoperability, privacy and security for health information, consumer health informatics, and trends and emerging technologies.

### **HCI 542. Database Concepts for Healthcare Management. 3 Hours.**

Introduces database theory and development techniques where the focus is on Data Retrieval and Data Preparation. Topics discussed include: Data Modeling Theories (entity-relationship diagrams), Normalization Theory, Structure Query Language (SQL), Report Writing, and a Survey of Contemporary Database Eco-systems. The main goal is to build knowledge foundation to assume role as a data analyst.

### **HCI 552. Healthcare System Analysis and Design. 3 Hours.**

Introduce a wide range of theoretical and practical techniques and methodologies in healthcare information systems analysis and design. Train the students to assume the roles of informaticists, business analysts, and systems analysts in the healthcare industry. The topics include analysis, design, and modeling of Electronic Health Record (EHR) and other information systems. Course Information: Co-requisite: HCI 513.

### **HCI 556. Health Information Exchange and Interoperability. 3 Hours.**

Introduce fundamentals of health information exchange (HIE). Discuss key concepts and practices of health information exchange and coordination across multiple healthcare providers. Review health IT standards, privacy, security, and health information operability. Review and discuss HIE applications through case studies. Course Information: Prerequisites: HCI 513.

### **HCI 558. Project Management in Healthcare. 3 Hours.**

Introduce project management concepts and methodologies. Manage projects in healthcare organizational context, including the processes related to initiating, planning, executing, controlling, reporting, and closing a project. Discuss project time, cost, and risk management. Describe resource management and managing the organizational change. Communicate projects in healthcare industry.

### **HCI 564. Fundamentals of Data Communications. 3 Hours.**

Explain fundamental networking concepts through a network model that divides data communication into multiple layers, such as application, network and transport, data link, and physical layer. Cover technologies used in different types of networks, such as local area networks and the Internet. Employ network management and network security. Introduce networked healthcare devices, applications, and services. Course Information: Co-requisite: HCI 513.

### **HCI 576. Data Mining in Healthcare. 3 Hours.**

Discuss data mining concepts, processes, and techniques. Develop and analyze exploratory and predictive models to generate meaningful insights in healthcare domain. Implement the data driven approach for healthcare applications with hands-on projects using data mining techniques. Course Information: Prerequisites: HCI 542.

### **HCI 578. Healthcare Information Systems Security and Privacy. 3 Hours.**

Discuss technical and managerial security issues in generation, storage, and access of healthcare information. Technical issues include threats, vulnerabilities, and controls in healthcare information systems. Managerial issues include risk management, security planning, disaster recovery, legal and ethical issues, such as privacy and confidentiality of patient information. Course Information: Prerequisites: HCI 513.

### **HCI 586. Exit Exam for MS-Healthcare Informatics. 3 Hours.**

Assessment of achievement of the learning objectives of the MS in Healthcare Informatics (HCI) of graduating students. Exit exam assesses students' body of knowledge mastered in the core courses of the program. Course Information: Credit/No Credit grading only. Prerequisites: HCI 586 must be taken during the student's final semester before graduation.

### **HCI 589. Exit Exam for MS in HCI Continuing Enrollment. 0 Hours.**

Students who do not complete HCI 586 Exit Exam must register for HCI 589 (zero credit, one billable hour) in each subsequent semester until the Exit Exam is completed. Course Information: May be repeated.