



# HEALTH INFORMATICS

## An innovative online program

As information technology becomes more integral to health care, the demand for health professionals who can fully utilize and add value to clinical and public health data is growing. Explore the emerging health informatics fields and how the acquisition, storage, retrieval and use of health data plays a critical role in enhancing the quality of care, reducing the costs of delivery and addressing population health issues.

In this fully online, interactive program, you'll learn core concepts and technologies related to the design, integration, implementation and evaluation of clinical information systems. And, you'll engage with expert faculty and peers representing a variety of professional roles and settings—from physicians and nurses to CIOs and systems analysts.

A partnership between UC Davis Extension and the UC Davis Health Informatics Program, this 19-unit certificate complements the university's graduate program by providing a meaningful option for working professionals who desire an applied program of study and want to get up to speed quickly. Benefit from UC Davis faculty expertise in medicine, nursing, public health and computer engineering, while gaining practical knowledge you can put to work immediately.

## Gain practical knowledge that matters

- Develop your knowledge of clinical data standards, terminological systems, interoperability and data exchange, data security and privacy.
- Understand clinical workflows, medical decision making, and the application of decision support as a supplement to clinical judgment.
- Acquire hands-on practice conceptualizing data models, workflows and decision support tools through guided projects and assignments.
- Gain insights into the change management principles necessary for successful technology adoption at the organizational and systems levels.
- Learn best practices in project management and their application to health information technology initiatives.

[extension.ucdavis.edu/healthinformatics](http://extension.ucdavis.edu/healthinformatics)

## Engage with professionals like you

A big part of your learning experience is the interaction with faculty and professional peers. This program is designed for professionals with prior experience in a health-related setting, such as nurses, physicians, pharmacists, laboratory directors, health program managers/analysts, chief information officers, clinical systems analysts and technical systems managers. Collaborate online with an interprofessional group of peers who bring rich experiences and a strong motivation to learn.

## Learn when and where you want

Courses are offered online and utilize audio, visual and interactive technologies to create an engaging online learning experience. Move through weekly lessons as a cohort while retaining the option to log in at the time and place of your choosing.

Required	Units
Introduction to Health Informatics	4
Clinical Data and Electronic Health Records	3
Health Information Systems Analysis and Design	3
Managing Systems Change	3
Clinical Decision Support	3
Elective (choose one)	
Public Health Informatics	3
Internet and the Future of Patient Care	3
Telemedicine	4
<b>Total Units</b>	<b>19</b>

The Health Informatics certificate is earned upon the successful completion of six courses (five required and one elective) with at least a "B" average in program coursework and a minimum of "C" in each course.

**UC DAVIS**  
**EXTENSION**  
**HEALTH SCIENCES**



CONTINUING AND PROFESSIONAL EDUCATION



## REQUIRED:

### Introduction to Health Informatics

*4 quarter units academic credit, X420.22.*

Health informatics is the intersection of information technology, computer science and health care. In this introductory course, gain broad exposure to the field of health informatics with an emphasis on its application to clinical settings. Explore the array of informatics sub-specialties, examples of different clinical applications (medicine, nursing, pharmacy, laboratory, public health), and the role of the health informaticist in bridging clinical care and information technology. Learn the core concepts and technologies, including terminologies, data standards, development approaches/strategies, data security and privacy.

### Clinical Data and Electronic Health Records

*3 quarter units academic credit, X420.12.*

Develop a comprehensive understanding of electronic health record systems and their use in various clinical settings. Learn about the components of an electronic health record (EHR) system, data standards and information representation, emerging and specialized terminological systems, and technical issues in data integration and interoperability. Understand clinical workflows and how these affect system design, and gain insights into clinical decision making and information needs at the point of care. Other topics include EHR implementation, common barriers to adoption, health information exchanges and the role of EHRs in public health.

### Health Information Systems Analysis and Design

*3 quarter units academic credit, X420.11.*

With an emphasis on the role of the informaticist, apply systems analysis and design theory to the development of health information systems. Learn basic principles of object-oriented programming and relational databases, the processes for assessing and modeling user requirements and data structures, the role of data standards in systems design and basic data warehousing strategies. Using a case study approach, learn to identify system strengths and weaknesses and gain hands-on practice in data modeling approaches to translate user requirements to system specifications.

### Managing Systems Change

*3 quarter units academic credit, X420.14.*

Consider the impact of health informatics on systems of care, including provider organizations, health systems, and the public health enterprise. Examine human factors of sociotechnical change and the implications for technology adoption, usability and workflow/process design. Learn to assess organizational readiness for change, design/implement a change process, and utilize best practices in project management to control project scope, time, cost, quality and risk. Other topics include leading project teams, fostering inter-organizational networks, and evaluating the success of change efforts.

### Clinical Decision Support

*3 quarter units academic credit, X420.20.*

Explore the principles of evidence-based medicine and the role of decision support tools in bringing informatics to the bedside. Learn about clinical decision support systems, common data sources and medical algorithms, and the applications and limitations of decision support as a supplement to clinical judgment. Gain hands-on practice with a variety of proprietary and open source systems, and evaluate their strengths and weaknesses.

## ELECTIVE:

### Public Health Informatics

*3 quarter units academic credit, X420.21.*

Examine information technology applications in the public health domain, focusing on the collection, verification, exchange and utilization of data related to populations as well as the infrastructure, functions and tools used to generate public health knowledge. Explore data mining techniques and the use of geographic information systems in mapping public health data. Learn about disease surveillance platforms and web-based public health education, the policy context of public health informatics and the long term potential for creating integrated, seamless health data systems.

### The Internet and the Future of Patient Care

*3 quarter units academic credit, X420.13.*

Explore the profound impact of the Internet on the delivery of health care from the patient and provider perspectives, including the role of the Internet as an information source, a communication tool and a conduit for clinical consultations and chronic disease management. Examine how health websites, blogs and popular social media tools are being used in health care. Consider the changing nature of the doctor-patient relationship, the coming era of personalized medicine, and the development of online consultations and virtual reality programs.

### Telemedicine

*4 quarter units academic credit, X420.1.*

Learn to develop a comprehensive and strategic business plan for a telemedicine program. Discuss key legal and policy issues, including HIPAA and JCAHO rules on risk management, standards, regulations, compliance and ethics. Compare and contrast various telemedicine programs with the UC Davis program model to determine best practices for implementing and evaluating programs and emerging technologies. This course is designed for resident physicians, junior and senior specialists, nursing and paramedical professionals, telemedicine coordinators, hospital administrators and graduating medical students who wish to attain the knowledge, understanding and practical preparation for planning, implementing and practicing telemedicine.

## For additional information

Please call (800) 752-0881,  
email [extension@ucdavis.edu](mailto:extension@ucdavis.edu)  
or visit us online.

