



**UC DAVIS**  
**EXTENSION**  

---

**HEALTH SCIENCES**

# Certificate in Health Informatics

Program Information Session

September 8, 2011

- 5:30-5:45    **The current state of health IT**  
                  -- Dr. Michael Hogarth, professor
- 5:45-6:00    **Overview of health informatics & careers**  
                  -- Mark Carroll, asst director, UCD HIP
- 6:00-6:15    **UC Davis Certificate Program**  
                  -- Susan Catron, director, UCDE Certificate
- 6:15-7:00    **Q&A**

Pictured:  
Dr. Peter Yellowlees, chair  
UC Davis Health Informatics Graduate Group



# The Current State of Health Information Technology

*Dr. Michael Hogarth*

*Professor, UCD Dept of Pathology & Laboratory Medicine*

*Professor, UCD Dept of Internal Medicine*

*Principal Investigator, CA Electronic Death Registration System*

# What is Health Informatics?

- The “scientific field that deals with **biomedical information, data, and knowledge** – their **storage, retrieval, and optimal use** for problem solving and **decision making**” (*Stanford*)
- The science of using system-analytic tools . . . to develop **procedures** (algorithms) for **management, process control, decision making** and **scientific analysis of medical knowledge.**” (*Shortliffe*)

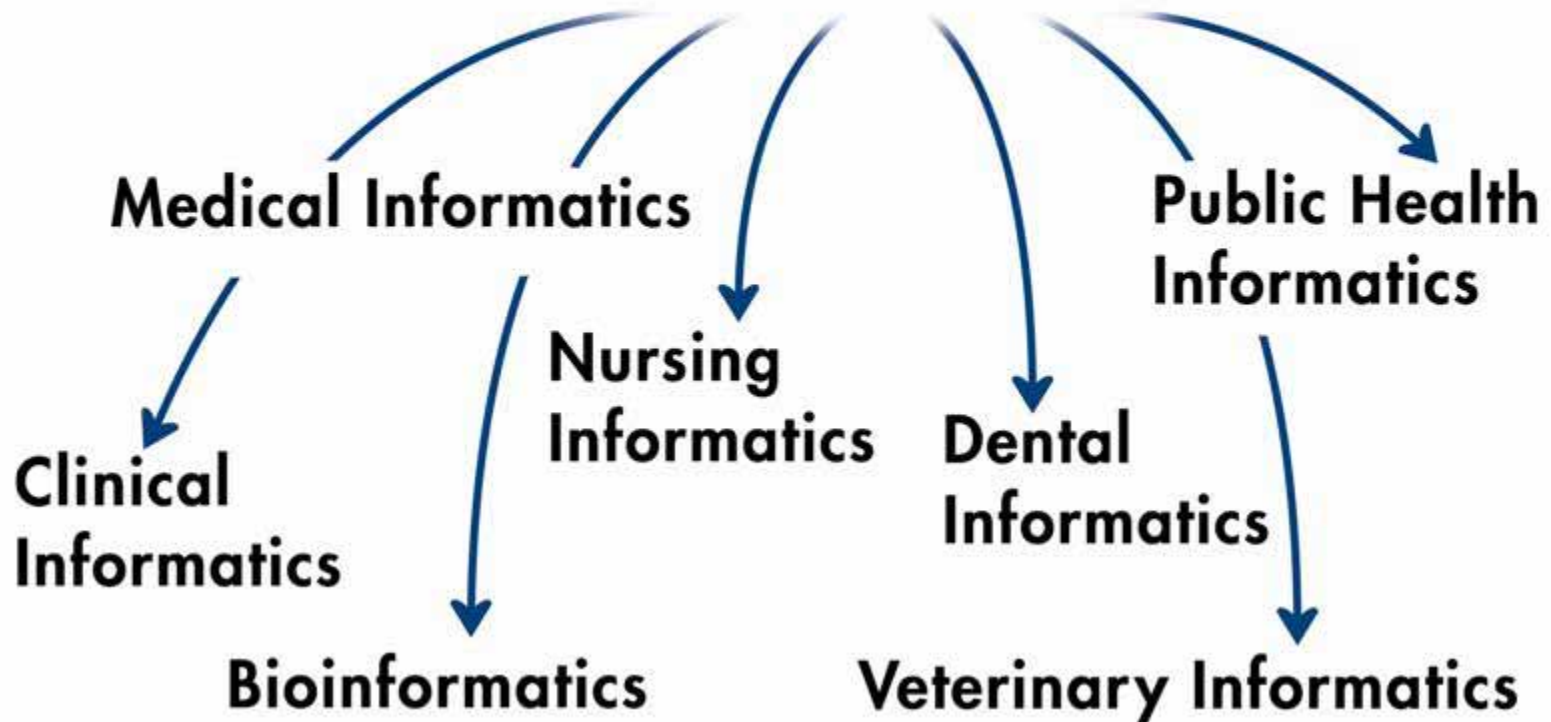
# A Bridge Between...



**Information Technology**

**Clinical Domain**

## Health Informatics



- Keeping the computers running
- Fixing the network
- Setting up new computers for employees
- Database management
- Medical coding

- **Develop, implement and maintain** innovative information systems to
  - Help doctors, nurses, researchers, public health experts and other health professionals make **evidence-based decisions**
  - **Educate and support** the health care consumer

- Estimated shortfall of 51,000 health IT workers nationally in next 5 years
  - HITECH Act, 2009
- About 61% of health care organizations in the U.S. and Canada plan to add IT professionals to their staff this year
  - Computer Economics, *TMCNet's "InfoTech Spotlight,"* 8/18/11
- Need for informaticists: “If there are about 3,000 trained informaticists now, we need ~10,000 more **SOON**”
  - Office of the National Coordinator for Health IT, March 2009

## Where are informaticists found?

- Academic institutions
- Medical centers and medical groups
- Government agencies
  - Local
  - State
  - National
- Technology & consulting firms
- Software vendors



- Commonly used sites:
  - [www.meditjobs.com](http://www.meditjobs.com)
  - [www.amia.org/jobex/job\\_listings](http://www.amia.org/jobex/job_listings)
  - [www.biohealthmatics.com](http://www.biohealthmatics.com)
- Other helpful sites for career research:
  - <http://www.healthinformaticsforum.com/>
  - <http://www.ahima.org/>

- **Certificate Program in Health Informatics**
  - 19 qtr. units
  - Offered *exclusively online*
  - No formal admissions; start any quarter
- **Master's Program in Health Informatics**
  - 43 qtr. units
  - Offered exclusively *face-to-face* (PT and FT options)
  - Admits in F, W, Sp quarters
- **Doctorate Program – *coming soon***

# What is a Certificate?

- Series of academic courses in a **focused area of professional practice**
- Offered by many universities and generally **recognized in industry**
- UC guidelines:
  - Minimum of 14 units (140 hours)
  - Credit awarded in X400 series
  - Courses reviewed/approved by campus
- **Transferability** to degree at discretion of institution where you apply



# Certificate Curriculum

Course Title	Units
Introduction to Health Informatics	4
Health Information Systems Analysis & Design*	3
Clinical Data and Electronic Health Records	3
Clinical Decision Support	3
Managing Systems-Level Change	3
<u>Electives</u> : Choose 1	
Public Health Informatics*	3
Internet and the Future of Patient Care	3
Telemedicine	4
<u>Total Units</u>	19

- Basic understanding of **programming**
- Basic understanding of **database management**
- Knowledge of **health care**
- Knowledge of **human diseases and conditions** (or basic medical terminology)
- **Project management** skills
- **Entrepreneurial** spirit



- All courses customized to clinical context
- Focus is on building knowledge/skill in:
  - Systems analysis & design
  - Data modeling strategies
  - Clinical data standards, terminological systems
  - Clinical workflows, use of EHRs & components (CPOE, LMIS, ...)
  - Knowledge representation for decision support
  - Leadership and project management
- Hands-on exercises or demos use open source applications

- All courses have required discussions
- Other requirements:
  - Hands-on exercises (e.g., data modeling diagram, use case diagram, database schema)
  - Case studies
  - Projects
  - Quizzes and exams

- Strongly interdisciplinary approach
- Breadth of expertise
  - Schools of Medicine, Nursing, Veterinary Medicine
  - Also Public Health Sciences, Computer Science, Engineering
- Many courses taught by graduate faculty
- Potential to transfer up to 12 units to UCD M.S.
- Administered by experts in adult learning



- Award-winning online learning model
- Rich, multimedia environment
- **Cohort-based**
- Need access to Web, good connection

The screenshot shows a web browser window displaying an online learning module. The browser title is "MH210 L2P6 Yellowless Intro to eHealthcare - Windows Internet Explorer" and the URL is "http://www.extensiondc.net/DLC/dlc/courses/MH210/lesson\_03/part6/player.html?id=21799&cid=457". The page header includes the UC Davis Extension logo and the title "Clinical Care Vision Continued". A sidebar on the left features a profile picture of Peter Yellowless and navigation links for "Home", "Outline", "Table of Contents", and "Search". The main content area displays a diagram illustrating the integration of data for clinical care. The diagram shows "EMR with clinical decision support" and "Genomic research with high capacity IT" feeding into an "Integrated genomic and phenotypic data repository". This repository then leads to "Facilitated translational research leading to:" which includes "Drug development" and "Diagnostic discovery". The diagram is set against a background of a laboratory with a person in a white coat. At the bottom of the page, there is a navigation bar with "articulate" branding and a "Done" button.



UCDEOLC Introduction to Health Informatics (094MHI210)

People

Participants

Online Users

- (last 60 minutes)
- Susan Catron
  - Melissa Buckley
  - Maureen Burbury
  - Eileen Patrick
  - Sal Ali
  - Wignaesh Sivan
  - Song Bao Toh
  - Secole OLC Support Team (Admin User)
  - Stephanie Payne
  - Deborah Greenwood

Activities

- Assignments
- Chats
- Forums
- Mail
- Questionnaires
- Resources

Administration

Weekly outline

Getting Started with Your Course

- Instructor's Welcome - Dr. Mark Carroll
- Introduction to the Health Informatics Certificate Program - Dr. Peter Yellowlees
- Syllabus \*\* READ THIS FIRST \*\*
- Introduce Yourself Forum
- Open Discussion Forum
- News - Announcement Forum
- DLC Mail

Online Office Hours

Instructor will be live on-line weekly for two one-hour periods for live feedback and instructor chat: Tuesdays and Fridays, 1-2 PM, PST

Click on the "Instructor Online Office Hours" link below and then click on the "Click here to enter the chat" link and you will see your instructor(s) and your fellow classmates.

Instructor Online Office Hours - Tuesdays & Fridays, 1-2pm, PST

Course end date = 6/18/2010.

Please keep in mind that after the course end-date, you will have 2 weeks to access only the "grade book" portion of the course website. Although DLC mail and forums will be active, your instructor will no longer be monitoring the course. This additional access is meant only to allow the instructor time to review final assignments and post grades, and students the time to log in to view them after the course has ended. All student logins will expire at 11:55pm, PST at the end of the 2 weeks.

April 5 - April 11 Lesson 1

OLC Support

Visit our customer support cent

Support

Calendar

April 2010

Sun	Mon	Tue	Wed	Thu	Fri
				1	2
4	5	6	7	8	9
11	12	13	14	15	16
18	19	20	21	22	23
25	26	27	28	29	30

Events Key

- Global
- Course
- Group
- User

**UC DAVIS  
EXTENSION**

Mark Carroll



# Introduction to Health Informatics



## Common Terminologies in Health Informatics

Mark Carroll

Transcript Outline Thumbnails Search

1. Common Terminologies in Health Informatics

2. Topics

3. Topics Continued

4. Topics Continued

5. Lecture Goal

6. 1a. Defined

7. 1b. Defined

8. 1c. Defined

9. Importance of Terminology

10. Importance of Terminology

11. Need for Maintenance

12. Many Terminologies

13. International Classification of Diseases (ICD)

14. Current Procedural Terminology (CPT)

15. CPT Continued

16. Diagnostic and Statistical Manual of Mental C

17. DSM-IV-TR

18. Systematized Nomenclature of Medicine

19. SNOMED Continued

articulate  
POWERED PRESENTATION



SLIDE 1 OF 37

PAUSED

00:02 / 00:27



**UC DAVIS  
EXTENSION**

Mark Carroll

Transcript Outline **Thumbnails** Search

## 2. Topics

01:34

Okay, so some of the topics we're going to look at are "what exactly is a terminology." We're going to define exactly what that is, why they are important to us as informaticists. Then we're going to look at the need for the maintenance of those terminologies, and then we're going to take that 10,000 foot view, if you will, of the terminology world, and look at some specific examples. We're going to look at several of them. There are hundreds out there too choose from if you so happen to want to jump on Google and take a look and see what's out there, but I've picked out the ones that are, shall we say, the most popular as well as some of the more obscure ones maybe to you that I have had the pleasure of working with. Maybe not the pleasure, but the struggles to work with at some points in my career so far.

And looking at our examples of what we're

## Topics

What is a terminology?

Why are they important?

Need for terminology maintenance

Examples of common terminologies

International Classification of Diseases (ICD)

Current Procedural Terminology (CPT)

Diagnostic and Statistical Manual of Mental Disorders ( DSM-IV-TR)

UC DAVIS  
EXTENSION

Transcript Outline Thumbnails Search

12. Iliad Interface

13. Iliad Continued



14. Iliad Interface

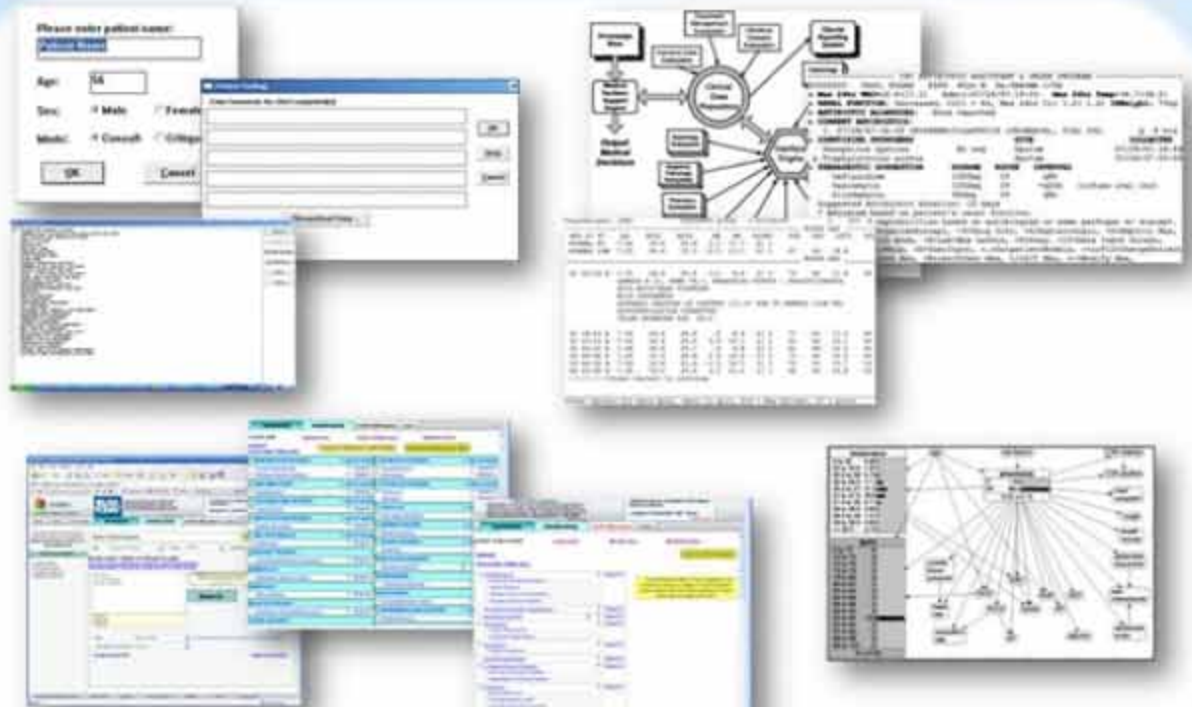
15. Informatics Year in Review

Thank you

# Iliad Interface

Next Slide

## Iliad Interface



We now begin the tour of the Iliad interface. I've created a series of screen shots that show the user entry forms and results pages from Iliad. I believe that these images provide a better tour of Iliad than my verbal description would. That said, I recognize you'll not be able to fully appreciate the detail on all of the data

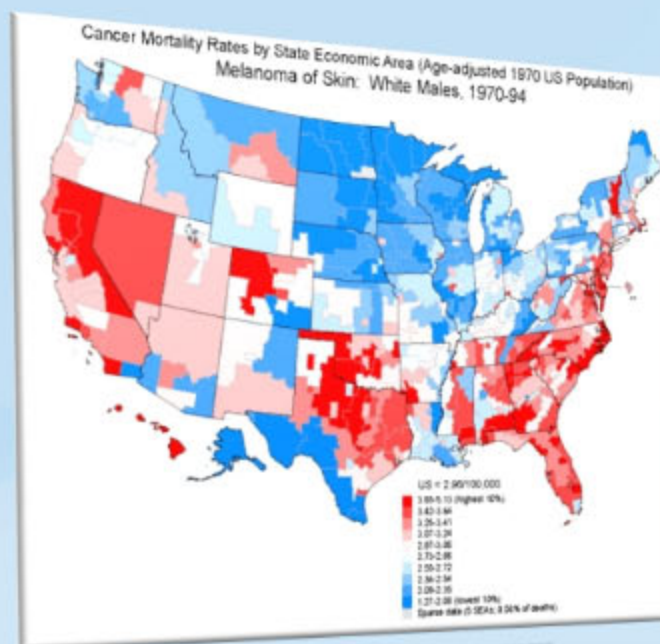
# Back to Spatial Epidemiology

Transcript Outline Thumbnails Search

## 21. Back to Spatial Epidemiology

00:56

But let's get back to health issues and how this all fits in with Spatial Epidemiology. I want to tell you a story that's probably familiar, the story of Dr. John Snow, but perhaps from a new perspective. I want you to think about all of this now geographically. I'll begin with a description of everyday conditions described by London's poorest citizens who submitted a letter to the London Times in July 1849. They said, "We live in muck and filth. We ain't got no privies, no dust bins, no drains, no water supplies, no drain or sewers in the whole place. We all of us suffer and members are ill and if the cholera comes, Lord, help us." Unfortunately, only five years later in 1854, cholera did come with a vengeance.



## General forums

Forum	Description	Discussions	Subscribed
Introduce Yourself Forum	<p><b>Introduce Yourself Forum</b></p> <p>Tell the class about yourself. What is your current profession? What are your future career aspirations and particular interests related to the field of Health Informatics?</p> <p>Click on the "Add a new discussion topic" button to post your introduction.</p>	18	<input type="checkbox"/>
Open Discussion Forum	<p><b>Open Discussion Forum</b></p> <p>Use this forum to share your thoughts, questions and observations with the rest of the class. Be sure to log in and check it periodically.</p> <p>You may upload files for sharing, but please note that there's a 2MB file size limit.</p>	9	<input type="checkbox"/>
News - Announcement Forum	<p><b>News - Announcement Forum</b></p> <p>General news and announcements.</p>	1	<input type="checkbox"/>


## Learning forums

Week	Forum	Description	Discussions	Subscribed
2	Influence Affecting the Future of Health Informatics	<p><b>Influence Affecting the Future of Health Informatics</b></p> <p>Visit one of the following sites to select a topic relating to the future of health informatics. Post your critique for merit and validity on this discussion forum.</p>	15	<input checked="" type="checkbox"/>

point range: 0-10

Add a new discussion topic

Discussion	Started by	Replies	Last
Google's PHRs	Bayardo Alvarez	2	Bayardo Alvarez Sun, Apr 25, 2010, 09:54 PM
Influence Affecting the Future of Health Informatics	Debbie E Sternberg	2	Joseph Gregg Wed, Apr 21, 2010, 09:06 AM
HIMSS Meaningful Use/Clinical Decision Support Wikis	Laura J Sousa	1	Cameron Tully-Smith -TA Tue, Apr 20, 2010, 11:34 PM
EHR Usability	Maureen Burbury	1	Cameron Tully-Smith -TA Tue, Apr 20, 2010, 11:32 PM
Got EHR?	Deborah Greenwood	7	Debbie E Sternberg Mon, Apr 19, 2010, 09:18 PM
EHRs and Medical Identity Theft	Joseph Gregg	8	Debbie E Sternberg Mon, Apr 19, 2010, 09:11 PM
Medical Devices and Patient Safety	Roberto Dacanay	7	Pamela M Savanovic Mon, Apr 19, 2010, 05:42 PM
Tiger Initiative	Roberto Dacanay	1	Bayardo Alvarez Sun, Apr 18, 2010, 11:54 PM
IMIA's Open Source Working Group	Kevin Chartrand	2	Bayardo Alvarez Sun, Apr 18, 2010, 11:40 PM
Himss patient identity integrity	Stephanie Payne	0	Stephanie Payne Sun, Apr 18, 2010, 09:20 PM
Defining and Testing EMR's	Eileen Patrick	1	Maureen Burbury Sun, Apr 18, 2010, 08:52 PM
US HHS Office of the National Coordinator (ONC)	Sal Ali	5	Kevin Chartrand Sun, Apr 18, 2010, 03:31 PM
Meaningful Use	Song Bac Toh	1	Deborah Greenwood Thu, Apr 15, 2010, 10:56 PM
TIGER Initiative	Pamela M Savanovic	7	Laura J Sousa Thu, Apr 15, 2010, 05:08 PM
Management Engineering & Process Improvement	Esther A Munoz	2	Pamela M Savanovic Thu, Apr 15, 2010, 03:19 PM

Display replies in nested form **Medical Devices and Patient Safety**

by Roberto Dacanay - Friday, April 16, 2010, 05:21 PM

One of the driving factors for the healthcare providers to embrace informatics is it's positive impact on patient safety and the delivery of quality healthcare. As a laboratory technologist, I have seen this technology bring improved methods for patient identification, data storage and retrieval. We implemented a phlebotomy collection device that scans the barcode wrist bands of our patients and validates the information in our LIS using wi-fi technology. Since the start we have not had a drastic drop in errors with patient identification and sample mislabeling. In fact we now have zero phlebotomy errors and sample mislabeling. Our analyzers use barcode readers which eliminate errors seen with manual entry of patient information. Since patient safety is an important criteria for choosing medical devices, vendors will look for ways to improve the design, certification and operation of their product to produce better, safer and cost effective product.

**Re: Medical Devices and Patient Safety**

by Mark Carroll - Saturday, April 17, 2010, 07:48 AM

Thats a very impressive record Roberto.. Can your LIS push data to Public Health? or other organizations?

If not, is that planned?

[Show parent](#) | [Reply](#)**Re: Medical Devices and Patient Safety**

by Roberto Dacanay - Saturday, April 17, 2010, 07:26 PM

Our LIS is capable of sending data in HL7 format and can be interfaced with the county if the receiving system can parse the transaction data. There was an initiative at one time to look into the possibility of interfacing with the county to comply with title 17 reporting but due to budget constraints the project is on hold. So we are still faxing them.

[Show parent](#) |**Re: Medical Devices and Patient Safety**

by Maureen Burbury - Sunday, April 18, 2010, 07:22 PM

- Consult program staff if no health background
- Recommend all students start with *Introduction to Health Informatics*
  - Fall: Starts Sept. 26
  - Winter: Starts Jan. 9
- Apply to program before completing 2<sup>nd</sup> course

- Application fee: \$45 (due by end of 2<sup>nd</sup> class)
- Course fees:
  - Paid on a **course-by-course** basis
  - Generally **\$1200/course**
  - Expected total cost: **Approx. \$7,200**
- Textbooks additional

**530-757-8993**

[www.extension.ucdavis.edu/unit/health\\_sciences](http://www.extension.ucdavis.edu/unit/health_sciences)

Laurel Aroner, program assistant/coordinator

[lcaroner@ucdavis.edu](mailto:lcaroner@ucdavis.edu)

Jennifer Kremer, program representative/manager

[jlkremer@ucdavis.edu](mailto:jlkremer@ucdavis.edu)

Susan Catron, director

[sdcatron@ucdavis.edu](mailto:sdcatron@ucdavis.edu)