Medical Informatics in Context

Graduate School of Library, Information and Media Studies

University of Tsukuba

19 October 2007

Abstract

- Medical informatics can be defined as "the application of information science and information technology to the theoretical and practical problems of biomedical research, clinical practice, and medical education."
- An increasing numbers of knowledge workers are involved in medical informatics-related programs and activities.
- This talk will provide an overview of the field of medical informatics and show how it "fits in" with other information fields.

Many different terms are now in use!

- Medical Informatics
- Biomedical Informatics
  - These two are synonymous
- Bioinformatics
  - This one is different
- Health Informatics
  - This is the newest term

Medical Informatics Definition #1

The field concerned with the cognitive, information processing, and communication tasks of medical practice, education, and research, including the information science and technology to support these tasks….it is both a science and a technology.

from Shortliffe's textbook

Medical Informatics Definition #2

An interdisciplinary field that combines medical science with several technologies and disciplines in the information and computer sciences [and one which] provides methodologies by which these fields can contribute to better use of the medical knowledge base and ultimately to better medical care…

American Association of Medical Colleges

Medical Informatics Definition #3

Medical informatics has to do with all aspects of understanding and promoting the effective organization, analysis, management, and use of information in health care. While the field of medical informatics shares the general scope of these interests with some other health care specialties and disciplines, medical informatics has developed its own areas of emphasis and approaches that have set it apart from other disciplines and specialties.

American Medical Informatics Association

Medical Informatics Definition # 4

Applications of advanced computer and communications technologies to health care, and specifically to information in health care…

Ellen Detlefsen's working definition

MeSH® defines medical informatics as

- "The field of information science concerned with the analysis and dissemination of medical data through the application of computers to various aspects of health care and medicine."

- Year introduced: 1987

MI developed as an academic field in the late 1960s and early 1970s….

- Work on the practical issues of clinical documentation, information systems, and technology in which computers had been introduced to increase productivity of medical processes
- Work on medical knowledge representation and language understanding, including artificial intelligence consultation and decision support systems
- Work on terminologies, coding, medical records, and indexing for Medline, exemplified in the Unified Medical Language System and related research.

- Maojo V, Kulikowski CA. Bioinformatics and medical informatics: collaborations on the road to genomic medicine? *J Am Med Inform Assoc*. 2003 Nov-Dec;10(6):515-22.

The first generation…

- many MI pioneers arrived to the field by chance, because they were interested in informational needs in clinical settings, complemented by colleagues from linguistics, mathematics, computer science, L/IS, engineering, and other disciplines.

MeSH® recognizes four sub-specialty areas

- Information Science Category
  - Information Science
    - **Informatics**
      - *Dental* Informatics
      - *Medical* Informatics
      - *Nursing* Informatics
      - *Public Health* Informatics

Other sub-specialties are emerging

- *Pathology* informatics
- *Radiology* informatics
- *Psychiatry* informatics
- *Primary care* informatics
- *Surgical* informatics
- *Veterinary* informatics
- *Consumer* informatics
- Telemedicine

- *Can be documented with journal articles and professional SIGs*

What is Bioinformatics?

- Bioinformatics is concerned with the creation and development of advanced information and computational technologies to solve problems in biology.
  - Bioinformatics uses techniques from informatics, statistics, molecular biology and high-performance computing to obtain information about genomic or protein sequence data.

BI emerged in the 1990s…20-30 years after medical informatics

- The terms *bioinformatics* and *computational biology* are often used interchangeably, although the latter typically focuses on algorithm development and specific computational methods.

- A common thread in projects in bioinformatics and computational biology is the use of mathematical tools to extract useful information from noisy data produced by high-throughput biological techniques.

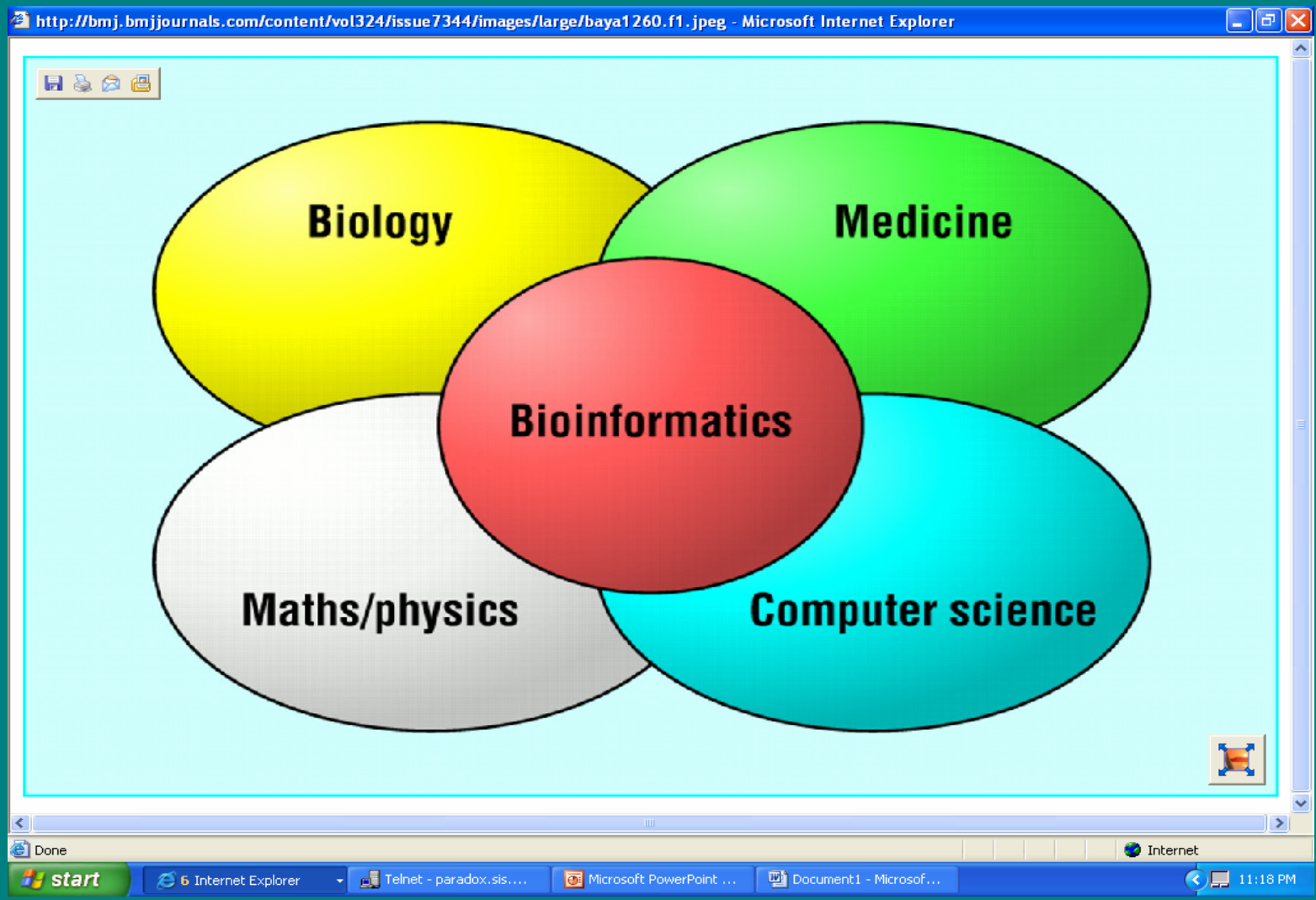
- The field of data mining overlaps with computational biology in this regard…
  - en.wikipedia.org/wiki/Bioinformatics

If you query the MeSH® database for "bioinformatics," you are directed to

- **Computational Biology**
  - A field of biology concerned with the development of techniques for the collection and manipulation of biological data, and the use of such data to make biological discoveries or predictions. This field encompasses all computational methods and theories applicable to molecular biology and areas of computer-based techniques for solving biological problems including manipulation of models and datasets.

- Year introduced: 1997

Bayat A. Science, medicine, and the future: Bioinformatics. *BMJ*. 2002 Apr 27;324(7344):1018-22



Real-world definition…..

- Roughly, bioinformatics is *any use of computers to handle biological information*.
- In practice, bioinformatics is often a synonym for "computational molecular biology"---*the use of computers to characterize the molecular components of living things*.

So what's the difference?

- "Traditionally, Medical Informatics has been focused on the intersection between computer science and clinical medicine,
- whereas Bioinformatics have been predominantly centered on the intersection between computer science and biological research.
- Although researchers from both areas have occasionally collaborated, their training, objectives and interests have been quite different."

- Martin-Sanchez F et al. Synergy between medical informatics and bioinformatics: facilitating genomic medicine for future health care. *J Biomed Inform*. 2004 Feb;37(1):30-42.

Shortliffe's 4-part model

- Bioinformatics
  - Molecular and cellular processes
- Imaging Informatics
  - Tissues and organs
- Clinical Informatics
  - Individuals and patients
- Public Health Informatics
  - Populations and society

- http://sci.asu.edu/news/bmi_symposium/downloads/EdwardShortliffe_presentation.pdf

Health Informatics

- The Canadian (and European) preferred term for medical and biomedical informatics
  - http://www.coachorg.com/default.asp?ID=390

Key Topics in the 1980s…

- Introduction to Medical Informatics
- Databases
- Networking and Distributed Computing
- Ambulatory Care Records
- Hospital Information Systems
- Integrated Clinical Information Systems
- Medical Imaging Systems
- Patient Monitoring
- Computers in Education
- Medical Decision Making
- Bibliographic Retrieval
- Controlled Medical Terminologies

Stanford University, Medical Informatics Short Course,1980s

“Grand Challenges” in the 1990s…

- Medical Information Standards
- Medical Informatics Training
- Integrated Health Information Management Systems
- Computerized Medical Records
- Clinical Information Systems, including radiology, laboratory, pharmacy
- Physician Order Entry Systems
- Computer−Aided Instruction
- Medical Expert Systems
- Nursing Informatics
- Health Information Networks
- Medical Software
- Research Funding Opportunities
- Cultural and Sociological Changes
- Medical Software Security

Duke University, 1990s

Some of the 21st century topics?

- Competing for Capital - Creative IT Investment Strategies
- Overcoming Barriers to Electronic Medical Records to Support HIV/AIDS Care in sub-Saharan Africa
- Development & Evaluation of a Standards-based PDA Documentation & Decision Support System for Advanced Practice Nurses
- Disseminating Innovations in Critical Care
- Looking into & out of CPOE's (Physician Order Entry) Black Box: Monitoring its Uses, Benefits and Consequences
- eCME: Is it ready for prime time?
- Progress and Prospects for the National Health Information Infrastructure
- Why is so much clinical IT so bad?

From a medical informatics conference brochure, Johns Hopkins, 2005

More 21st century topics?

Accessing Information at the Point of Care: Impact and Challenges

Three usability studies of informatics tools at patient-provider interface: a HRT decision tool, tobacco use risk tool, & medical resident usage of PDA tools

Managing a Drug Withdrawal Crisis via Health IT PDAs for Decision Support at the Point of Care: Lessons Learned

Effective Clinical Decision Support: Assessing Factors Critical for Success

Bringing technology to people & people to technology: Uganda as a case in point

eLearning and eEducators at the Point-of-Care

Redesigning Hospital Processes with EHRs-A Socio-Technical (ST) Approach

A Web-based Point of Care Knowledge Resource and Workflow Support for Ambulatory Care

PDAs: Improving Medication Safety through Access and Use of Drug Information Sources

From a medical informatics conference brochure, Johns Hopkins, 2005

Who Are Medical Informaticists?

Practitioners in an interdisciplinary academic field, chiefly based in medical schools, with a broad range of professional training

- physicians/health professions schools faculties
- computer scientists/engineers
- nurses
- pharmacists
- dentists
- veterinarians
- government officials
- medical records administrators
- medical librarians
- lawyers
- cognitive psychologists
- software/hardware producers/publishers
- healthcare consumers/advocates
- insurance providers/ third party payers

Where Do Medical Informaticists Work?

- health professions school faculty
- academic research & development
- educational support positions
- clinical administrative/educational managers
- healthcare facility Chief Information Officers
- corporate research and development
- health information professional/biomedical librarians
- entrepreneurs

Medical Informatics Journals

Artificial Intelligence in Medicine
BMC Medical Informatics and Decision Making
Computers in Biology and Medicine
Computers, Informatics, Nursing: CIN
Health Informatics Journal
Healthcare Informatics
IEEE Transactions on Information Technology in Biomedicine
International Journal of Medical Informatics
J Healthcare Information Management
J Telemedicine and Telecare
Medical Informatics and the Internet
Online Journal of Nursing Informatics
Telemedicine Journal and eHealth

Academic Medicine
Bioinformatics
BMC Bioinformatics
Health Informatics J
Healthcare Informatics
JAMIA
JASIST
J Biomedical Informatics
J of Medical Internet Research
Medical Decision Making

Organizations concerned with medical informatics…

- American Medical Informatics Association - www.amia.org
- International Medical Informatics Association - www.imia.org
- Health Information Management Systems Society - www.himss.org
- American Health Information Management Association - www.ahima.org
- Association for Information Science & Technology; SIG-MED http://www.asis.org/AboutASIS/asis-sigs.html#SIGMED
- Medical Library Association - www.mlanet.org

Where can someone go to earn a degree in medical informatics?

- Universities
- Medical libraries
- Medical centers
- Professional meetings
- On the Web

AMIA - Academic & Training Programs - Microsoft Internet Explorer

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Back Address http://www.amia.org/informatics/acad&training/ Go

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About Informatics: Thought Leaders | News & Developments | Public Policy | Research & Grants | Academic & Training | Awards | Conferences & Meetings

Home → About Informatics → Academic & Training Programs

Degree Programs, Certificate Programs, Fellowships, and Short Courses

The following is a list of formal academic and training programs in North America in medical, nursing, and health care informatics. For a list of academic medical informatics programs outside North America, please **click here**.

The icons below are used under the names of institutions to indicate the types of formal academic and training programs available.

- *A* Associate degree in informatics
- Undergraduate degree in informatics
- *M* Masters degree in informatics
- *PhD* PhD degree in informatics
- Informatics specialization within other degree programs
- NLM-sponsored post-doctoral fellowships
- Other post-doctoral research fellowships
- Certificate program
- Short courses
- Online/distance education programs

If your institution has a program that should be included in this list, please **send a message here**; include the Web address of your program and indicate which of the above types of degrees and training are available.

Public Health Informatics Training Program at Columbia

Intensive Course in Biomedical Informatics at Columbia

Short Courses, Immersion Programs in Informatics

Stanford Short Course

Weekend Immersion in Nursing Informatics

Woods Hole Institute

Internet

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University Medical Informatics Research Training Programs - Microsoft Internet Explorer

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Back Address http://www.nlm.nih.gov/ep/GrantTrainInstitute.html Go

Senior Scholar, NLM Extramural Programs
301-594-4882
Fax: 301-402-2952
Email: friedmc1@mail.nih.gov

Links to University Training Center web sites:

1. Program in Biomedical Informatics
   Harvard-MIT Division of Health Sciences & Technology
   Robert A. Greenes

Internet

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Institutions with NLM training programs in medical informatics, and a strong L/IS program

- Training Program for Imaging-Based Medical Informatics – ***UCLA***
- Biomedical and Health Informatics Research Training - *University of **Missouri** Columbia*
- Pittsburgh Biomedical Informatics Training Program *University of **Pittsburgh***
- Regenstrief Informatics Research Fellowships *Indiana University - **Purdue** University at Indianapolis*
- Biomedical and Health Informatics Training Program - *University of **Washington***
- Computation and Informatics in Biology and Medicine - *University of **Wisconsin** Madison*

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http://www.dbmi.pitt.edu/index.html

Go Links

University of Pittsburgh

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Learn about the Department of Biomedical Informatics (DBMI)

Training Program

The Pittsburgh Biomedical Informatics Training Program has been preparing individuals for basic and clinical research, healthcare and development careers since 1987. Areas of concentration include: Clinical Informatics. Bioinformatics, Dental Informatics, Health Services Research, Biosurveillance/Infectious Disease

Informatics Today

Available now: the premiere issue!

the Newsletter of DBMI

download now>>

Words from the Wise

Dr. Donald Lindberg, MD

Director, National Library of Medicine

read more>>

Highlights

View openings for post-doctoral research associates, fellowships and technical staff

Lectures

Internet

Institutions with NLM training programs in medical informatics, and a strong health sciences library-based training program

- Johns Hopkins Health Sciences Informatics Training Program - ***Johns Hopkins*** University
- Vanderbilt Biomedical Informatics Training Program - ***Vanderbilt*** University
- Training Program in Health Informatics - ***Oregon*** Health & Science University

Vanderbilt Medical Center Vanderbilt University

Department of Biomedical Informatics

Department of Biomedical Informatics · Eskind Biomedical Library · 4th Floor · 2209 Garland Ave · Nashville, TN 37232-8340
phone: (615) 936-1556 · fax: (615) 936-1427

Institutions with NLM training programs in medical informatics, but no L/IS program…

- Biomedical Informatics Training Program - *University of **California Irvine***
- Medical Informatics Research Training Program - ***Columbia*** University
- Program in Biomedical Informatics - ***Harvard-MIT*** *Division of Health Sciences & Technology*
- Health Informatics - *University of **Minnesota** Twin Cities*
- Training Program in Computational Biology and Medicine - **Rice** *University*
- Training of Toolmakers for Bio-Medical Informatics - *Medical University of **South Carolina- MUSC***
- Graduate Training in Biomedical Informatics - ***Stanford*** *University*
- University of Utah Medical Informatics Training - *University of **Utah***
- Biomedical Informatics Research Training at Yale - ***Yale*** *University*

egree Programs

department of Biomedical Informatics at Columbia University offers a variety of training opportunities to meet different needs:

ogram	Prerequisite	Duration	Part-Time Study	Financial Support
A	BA	1-3 years	YES	Self
D	BA	4-6 years	NO	Columbia or NLM
/PhD	BA	7-8 years	NO	Columbia or NLM
st-doctoral fellowship (degree-granting)	Doctorate	2-3 years	NO	Columbia or NLM
st-doctoral fellowship (non-degree)	Doctorate	2-3 years	NO	Columbia or NLM

field of Biomedical Informatics is very broad. Students can choose to focus on one of the four following tracks, which study application of information technology and its impact on health and disease from the molecular level to whole populations:

- Bioinformatics - the structure and function of cells and cell components; genomics; proteomics
- Clinical Informatics - the delivery of patient care, nursing, and dentistry; electronic medical records; systems to improve the quality of health care and reduce cost
- Public Health Informatics - the health of populations; systems to educate providers and patients; medical research systems. Special funding slots available through NLM

omewhat outdated description of the program is available in an article published in the 2002 Yearbook of the International medical Informatics Association (IMIA). There is additional information about requirements for admission, and an application he program can be completed on-line. The department offers a rich curriculum for biomedical informatics students in the MA, D and postdoctoral programs, as well as students in other departments. A number of links and presentations provide


Introduction to Molecular Biology Information Resources (Home Page) - Microsoft Internet Explorer
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DESCRIPTION
This three-day course provides an introduction to four domains of information generated by the field of molecular biology:
nucleotide sequences
protein sequences
three-dimensional structures
complete genomes and maps
An overview of flagship search systems and databases available at the National Center for Biotechnology Information emphasizes how your current search skills apply to molecular biology databases. A tour of advanced Entrez search features illustrates techniques for effective and efficient retrieval of molecular data and will help you to address some common user needs. The course also introduces more technical search systems, including BLAST, Map Viewer, and the Cn3D viewer for three-dimensional protein structures. The course format combines lecture, demonstration, and hands-on experience, and concludes with a discussion of various levels of molecular biology information services provided by librarians. Additional detail about the material covered is accessible from the modules page, and the daily schedule is also provided. This course is approved for 20 CE contact hours by the Medical Library Association (MLA).
DATES AND LOCATIONS
November 2-4, 2005 Houston, TX
November 2-4, 2005 National Library of Medicine
March 1-3, 2006 Ann Arbor, MI
March 28-30, 2006 Davis, CA
June 14-16, 2006 Cambridge, MA
Additional details about each location as well as a link to a registration form are provided on the upcoming courses page. Each course is three days long, 9:00 AM - 5:00 PM each day (see schedule for details). Additional course dates/locations will be posted as they are scheduled. A list of past courses is also available.
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Individual Biomedical Informatics Fellowships

Introduction

PAR Number: PAR-03-070
Clarification Of Eligibility For: Par 03-070 - Individual Informatics Research Fellowship (F37) (NOT-LM-04-006) National Library of Medicine INDEX: LIBRARY MEDICINE http://grants.nih.gov/grants/guide/notice-files/NOT-LM-04-006.html
Release Date: 02-12-03
Expiration Date: 03-01-06, unless reissued

Scope and Priorities

Purpose

Individual biomedical informatics fellowships provide support for the training of informatics scientists able to perform research into basic informatics problems or to application of informatics to any area of biomedicine, including clinical medicine, basic biomedical research, clinical and health services research, public health, professional education, and administration. Post-doctoral, pre-doctoral and, in certain specified fields, some post- baccalaureate candidates are eligible.

Training Objectives

Health informatics is concerned with the acquisition, representation, storage, retrieval, and utilization of information in a health-relevant domain. Fellowship training is intended to help meet the growing national need for research investigators and leaders trained in the myriad of specialized areas in biomedical computing and health informatics. Thus, this fellowship is suitable for training in informatics specializations ranging from clinical informatics to the informatics of molecular biology and other large research datasets. Applications that focus on building new skills or extending the applicant's existing expertise are particularly desirable.

Upon completion of training, fellows should be able to conduct basic or applied research at the intersection of biology

Helper Links for Fellowships
Review Guide for Biomedical Informatics Fellowships
Individual Fellowship Allowable Costs
Recent Fellowship Awards
Required Federal Citations
Reports Required
NRSA Policy Guidelines
NRSA Fellowships FAQ

Grant Programs Overviews
Research Support
Resource Support
Career Support
Training Support
Small Business R & D Support

Continuing education courses

- primarily at national and regional professional meetings
  - MLA
  - AMIA
  - ASIS&T

MLA '06: Continuing Education Courses

A full description of the specific CE course appears below. For further information, or if you have other questions about MLA CE courses, contact Debra Cavanaugh, mlapd3@mlahq.org, 312.419.9094, x32.

CE 703
Introduction to Medical/Health Care Informatics for Librarians

Level: Beginning
Prerequisite: None
Cost: $285 (nonmember, $335)
Attendance Maximum: 30

Instructor(s): Kathleen Ann McKibbon, associate professor, Clinical Epidemiology and Biostatistics, Health Information Research Unit, McMaster University, Hamilton, ON, Canada, and Ellen Detlefsen, associate professor, School of Information Sciences, Department of Library and Information Science, University of Pittsburgh, Pittsburgh, PA

This workshop is designed around two basic purposes: First, it gives librarians a broad understanding of what medical/health care informatics is, how and to what extent it overlaps with medical/health care librarianship, and what ton expect from more implementation of these systems in the organizations where librarians work. Second, it shows examples of how information is being integrated into health care delivery, where librarians can benefit from working with informatics systems, issues involved in implementation, and potential problems inherent with medical informatics

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torials

orials - Excellence in Informatics Education

tutorial program will provide a learning experience filled with rich content.

se 26 tutorials, taught by a faculty comprised of AMIA's widely recognized thought leaders in the field are igned to stimulate interest in the diverse body of informatics knowledge. Tutorials have been divided into four es - Primers, EHRs, Methods, and Selected Topics.

mer Series:
s set of tutorials is designed to provide an introduction to key current and emerging areas in informatics and considered essential to the core foundation of informatics theory, application, and practice.

R Series:
time of the Electronic Health Record (EHR) is now upon us. This series of tutorials will focus on the key ertise required for individuals responsible for EHR selection, implementation, deployment, and evaluation.

thods Series:
methods series is designed for individuals looking for advanced instruction from leading experts on the cedures and techniques characteristic of the field of biomedical informatics.

ected Topics Series:
s series of tutorials provides in-depth treatment of special topics in clinical and health informatics, nformatics, and public health informatics.

orials Rates

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Problems with the Distribution of Health and Medical Information (SIG KM and SIG MED)

Catherine Smith, Tim Patrick, Paula Rhyner, Deborah Swain and Leonard Davolio

(Submission #13)

Summary

According to many experts in the field of medicine, there is potential for a crisis in the collection and distribution of patient records and community health. In the 1990s the introduction of HIPAA (Health Information Privacy and Accountability Act) regulations protected individual privacy, but the need for social computing, collaboration, and sharing of data about bird flu, for example, is changing information practices. Social networking groups, such as communities of practice (CoP) made up of health and medical professionals, are growing with the spread of communicative diseases, viruses and pandemic flu. Applying research tools, health projects in pediatrics are creating communication maps for all stakeholders (care providers, parents, program managers, and researchers). This panel looks at both research and applications in the field of informatics as practiced in hospitals, clinics, and medical offices.

Distance education from the medical informatics or L/IS communities

- AMIA's 10 x 10 program
- OHSU's online master's program
- Pitt's Fast/Track medical specialization

AMIA - 10x10 - Microsoft Internet Explorer

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American Medical Informatics Association

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Inside AMIA: FAQ Initiatives Job Exchange News Releases AMIA Officers Committees Awards Staff Bylaws/Policies Strategic Plan

Home → Initiatives → AMIA 10x10

AMIA 10x10™

10,000 Trained by 2010

Training Health Care Professionals to Serve as Local Informatics Leaders and Champions

"Because we are serious about transforming our system of health care to be safe, efficient, timely, patient-centered, equitable, and effective, we must invest not only in technology, but also in the education and training of individuals to ensure our workforce is poised to meet this challenge. One of the factors most important to the success of health care information technology projects is the engagement and participation of clinicians. There must be - a cadre of health care professionals (physicians, nurses, and others) who have knowledge and skills beyond their clinical training. Virtually every hospital, clinic, physician office, or other health care provider organization will in some way utilize information technology solutions in the coming years and will need health care professionals versed in informatics to assist with the implementation, use, and success of these systems."

Don E. Detmer, MD, MA

AMIA 10x10 Program

The AMIA 10x10 will utilize curricular content from existing informatics training programs and other AMIA educational initiatives with a special emphasis toward those programs with a proven track record in distance learning. The content will provide a framework but also cover plenty of detail, especially in areas such as electronic and personal health records, health information exchange, standards and terminology, and health care quality and error prevention.

We anticipate AMIA 10x10 programs to be geared toward three major domains in the field of informatics:

- Clinical or health care (including personal health management; electronic and personal health records; health information exchange; standards and terminology; and health care quality and error prevention.
- Public health/population informatics
- Translational bioinformatics

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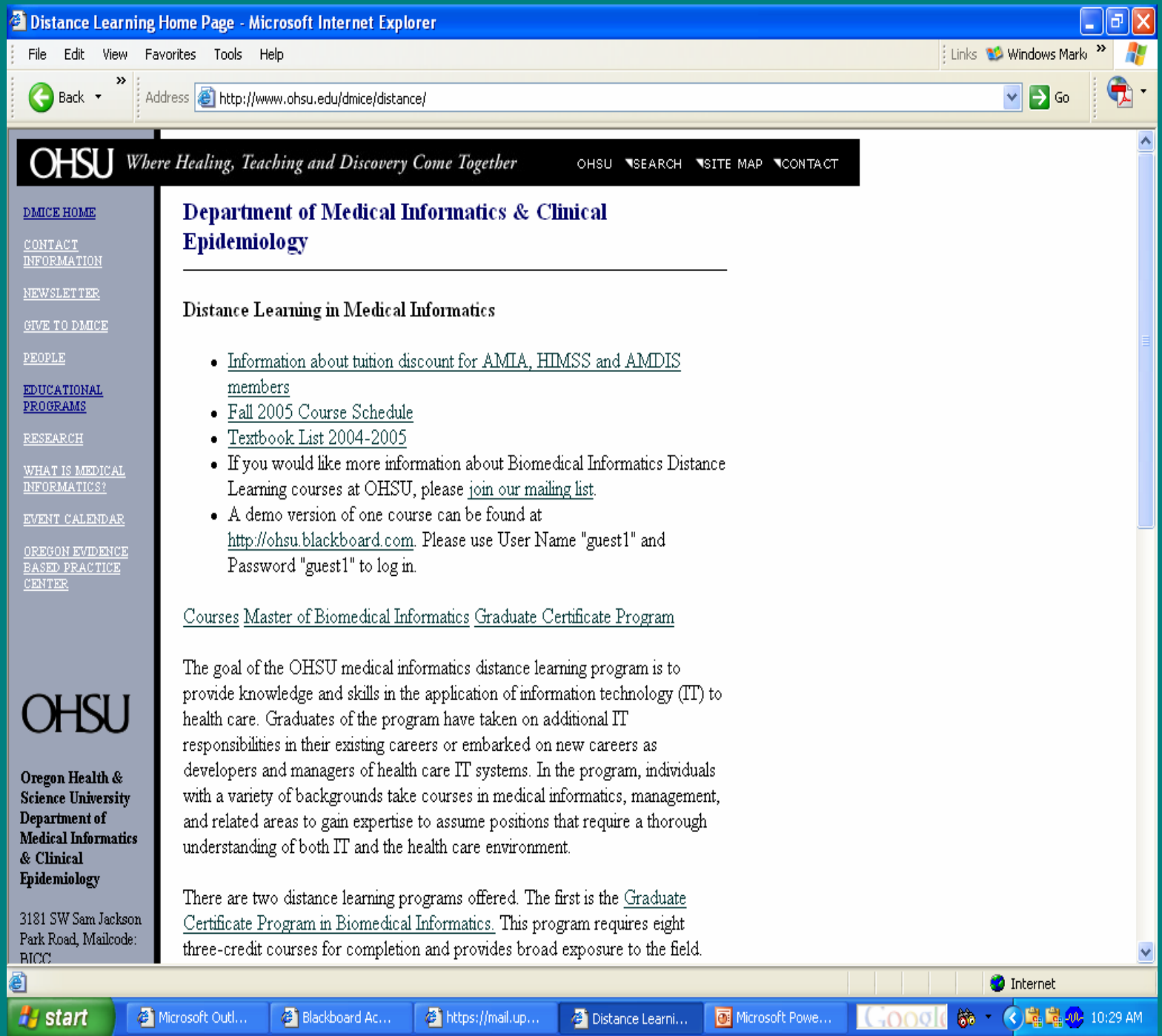
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Fall 2005 Course Schedule
Textbook List 2004-2005
If you would like more information about Biomedical Informatics Distance Learning courses at OHSU, please join our mailing list.
A demo version of one course can be found at http://ohsu.blackboard.com. Please use User Name "guest1" and Password "guest1" to log in.
Courses Master of Biomedical Informatics Graduate Certificate Program
The goal of the OHSU medical informatics distance learning program is to provide knowledge and skills in the application of information technology (IT) to health care. Graduates of the program have taken on additional IT responsibilities in their existing careers or embarked on new careers as developers and managers of health care IT systems. In the program, individuals with a variety of backgrounds take courses in medical informatics, management, and related areas to gain expertise to assume positions that require a thorough understanding of both IT and the health care environment.
There are two distance learning programs offered. The first is the Graduate Certificate Program in Biomedical Informatics. This program requires eight three-credit courses for completion and provides broad exposure to the field.
OHSU
Oregon Health & Science University Department of Medical Informatics & Clinical Epidemiology
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Medical Librarianship/Medical Informatics Career Track

The University of Pittsburgh School of Information Sciences, through its Department of Library and Information Science (DLIS), offers individuals interested in this career the Medical Librarianship/Medical Informatics Specialization as part of its 36-credit Master of Library and Information Science [MLIS] degree. The specialization provides an opportunity for those interested in careers in medical informatics and medical libraries, fast-growing professions with employment opportunities in hospitals, academic medical centers, health care systems, Federal, state, and local government, corporations, nursing homes, and public and school libraries and other information resource centers. In addition to a focus on medical libraries and knowledge-based information in the clinical and research setting, some students may specialize in medical informatics or consumer and patient health information sources and services.

The intent of this graduate education program is to orient prospective health information professionals to the theory, methodology, and practice of medical information management (including but not limited to medical librarianship). The SIS curriculum is designed to support the concept that medical librarians and medical information managers are team players in the integrated information environments characteristic of modern medicine. The curriculum also supports study into the nature of health and medical information, and the traditional and the electronic means by which such information is organized, stored, and retrieved.

DLIS seeks students with diverse educational work and backgrounds. Any undergraduate degree and major is acceptable, but backgrounds in science, health sciences (including first professional degrees in the health sciences such as the BSN, BPharm, etc.), the human services, and computer/information science, will be given preference for the Medical Informatics/Medical Librarianship specialization.

SPECIAL ADMISSION REQUIREMENTS FOR MEDICAL LIBRARIANSHIP CAREER TRACK

Short courses….

- Woods Hole MBL
- Stanford University
  - designed for health professionals seeking additional training or updating, who will serve “change agents” in their institutions
  - a tradition of welcoming medical librarians as part of the multidisciplinary training class

MBL : Special Topics Courses: Medical Informatics - Microsoft Internet Explorer

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MARINE BIOLOGICAL LABORATORY
Woods Hole, Massachusetts 02543, USA

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special topics courses

BioMedical Informatics

Course Dates: Spring Session: May 28 - June 4, 2006
Fall Session: September 24 - October 1, 2006

Online Application Form, (PDF) Deadline: **January 19, 2006**

Course Website | Student Course Evaluation

This week-long survey course is designed to familiarize individuals with the application of computer technologies and information science in biomedicine and health science. Through a combination of lectures and hands-on computer exercises, participants will be introduced to the conceptual and technical components of biomedical informatics. The conceptual components will include principles of database design, human-computer interfaces, medical terminologies and coding systems, medical decision analysis methods, clinical information systems architectures, and methods for measuring costs and benefits in health care systems. The technical components will include use of the Internet for biomedical applications, current and emerging wide area network technologies, use of literature and molecular sequence databases, and sytems for telemedicine. Elective evening workshops will teach personal computer skills such as creation of World Wide Web interfaces to databases and use of personal productivity tools.

Taught by a nationally known faculty, the course will prepare the student to become actively involved in making informed decisions about computer-based tools in his/her organizational environment, and improve the student□s own computer skills.

This is a National Library of Medicine fellowship program directed at medical educators, medical librarians, medical administrators, and young faculty who are not currently knowledgeable but can become agents of change in their institutions. Limited to 30 fellows per session.

Costs of attending the course, including travel, housing and meals at MBL, are fully supported by the National Library of Medicine, NIH.

Director: James Cimino, *Columbia University*
Principal Investigator: Cathy Norton, *Marine Biological Laboratory*

Internet

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SCPD - Course Portfolio - Professional Ed. Courses - Microsoft Internet Explorer

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Did You Know?

Hoover Tower/Institution: Named for Herbert Hoover, the 31st president of the United States and a Geology major at Stanford. Becoming president was the only thing Hoover could do to erase the memory of his days as Stanford football manager, when he forgot to bring the ball to the first Big Game.

Professional Education Courses

Biosciences & Bioengineering Go

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Print Full Course Info

Medical Informatics Introductory Short Course (Online)

Course Description | Course Details | Course Topics | Other Information | Course Cost

COURSE DESCRIPTION:

Streamed Over the Internet On-Demand

The Medical Informatics Introductory Short Course provides an overview of the field of Medical Informatics using computers for management of clinical information. The lectures communicate the key technical issues in informatics through coordinated lectures that cover major themes in the field. The course will alsodescribe state-of-the-art research topics through presentations and demonstrations.

COURSE OBJECTIVES:

- To provide an overview of the field of Medical Informatics (using computers for management of clinical information).
- To communicate the key technical issues in informatics through coordinated lectures that cover major themes in the field.
- To describe state-of-the-art research topics through presentations and demonstrations.

FACULTY: Lawrence Fagan, M.D., Ph.D.

For More Information

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SCPD - ProEd Bioinformatics Online Minisite - Microsoft Internet Explorer

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Course Information

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Bioinformatics Methods and Techniques

Online Programs

Enroll Now

With its power to convert vast amounts of biological data into knowledge, Bioinformatics unlocks the tremendous potential for understanding the human body, accelerating biological research, and developing new medical therapies.

This intensive online course explores the broad scope of bioinformatics, discusses the theory and practice of how these tools are built, and provides an understanding of their applicability and limitations to sequence analysis, functional genomics, and protein structure analysis and prediction.

Course Objectives

- To provide an analysis of the field of Bioinformatics
- To communicate the key methods in Bioinformatics and Genomics through coordinated lectures that cover major themes in the field
- To reinforce major topics in Bioinformatics and demonstrations using software programs
- To describe state-of-the-art research in Bioinformatics through presentations and demonstrations

Intended Audience

Professionals in the pharmaceutical and biotechnology industries including:

- Biologists
- Researchers
- Managers

Done Internet

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Are there any role models?

- Yes, there are L/IS faculty who teach and do research in medical informatics
- Yes, there are medical librarians and information specialists who work in academic and library settings, with a job description that encompasses bioinformatics….

- Typically, these people have a PhD degree and a degree in either the health sciences and/or the L/IS field

Clinical Epidemiology and Biostatistics

SEARCH: GO

EXPLORE: McMaster Quick Links

McKibbon >

Ann McKibbon BSc.(Guelph), MLS (Western), PhD (Pittsburgh)

Associate Professor , Department of Clinical Epidemiology & Biostatistics

Member, Health Information Research Unit

Tel: 905-525-9140 x 22803
Fax: 905-546-0401
E-mail: mckib@mcmaster.ca

Postal address:
McMaster University
1200 Main Street West, Rm. 3H7A
Hamilton, Ontario, Canada L8N 3Z5

Office location: HSC-3H7A

Back to Faculty Members

Academic Interests

Dr. McKibbon's current interests are in knowledge translation, medical/health informatics, and information retrieval. Specifically I am interested in how health professionals use electronic information resources, the results they get, and how identified information is used in practice.

University of Florida Health Science Center Libraries - Microsoft Internet Explorer

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UNIVERSITY OF FLORIDA Health Science Center Libraries

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Michele Tennant

Ph.D, MLIS

Bioinformatics Librarian

The Medical Library Association's 2005 Academic Medical Librarian of the Year

Liaison Librarian to:

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College of Medicine

Molecular Genetics and Microbiology (joint appt.)
Anatomy and Cell Biology
Biochemistry and Molecular Biology
Physiology and Functional Genomics
MS, Ph.D and IDP students

Other Programs

ICBR
Department of Zoology (CLAS)
Plant Molecular and Cellular Biology (IFAS / CLAS)

- About Your Liaison
- Background and Experience
- Other Liaison Librarians

352.846.0149
michele@library.health.ufl.edu

As your Liaison Librarian, Michele can:

- Provide assistance with literature searches, including those for grants and IACUC applications
- Provide information consultations or library orientations
- Receive recommendations for books, journals, audio-visuals or databases to be added to the HSC Libraries collections

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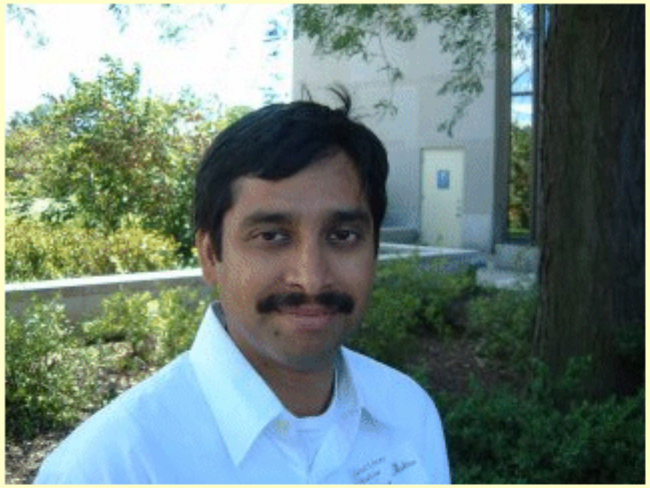
Instructor

list of instructors



Ansuman Chattopadhyay has PhD in Biochemistry with extensive experience in signal transduction research using molecular biology approaches. He is currently working as Head, Molecular Biology Information Service at the Health Sciences LibrarySystem, University of Pittsburgh, where he has developed an information service program focused on the fields of Molecular Biology and Genetics. He offers hands on workshops in the use of molecular biology software and databases, provides consultation to research teams for questions related to bioinformatics resources, developed and maintains a web-based portal for molecular biology information. Dr. Chattopadhyay previously held positions in the Department of Biochemistry at Vanderbilt University School of Medicine at Nashville, TN and Cellomics Inc., at Pittsburgh, PA.

Who's Who at Eskind
Access
Programs
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New Digital Library Resources
Ask ELIS

Nunzia B. Giuse, M.D., M.L.S., A.H.I.P.

Director of the Eskind Biomedical Library
Professor, Department of Biomedical Informatics
Professor, Department of Medicine

Full CV

Nunzia B. Giuse, M.D., M.L.S., A.H.I.P., is Professor in the Department of Biomedical Informatics and in the Department of Medicine, and Director of the Eskind Biomedical Library (EBL) at Vanderbilt University Medical Center (VUMC). Prior to coming to Vanderbilt in 1994, Dr. Giuse established herself as an independent researcher in the area of multi-center medical knowledge base acquisition strategies while at

faculty

Cynthia S. Gadd, Ph.D., MBA, M.S. (Cindy)
Associate Professor of Biomedical Informatics
Director of Educational Programs
Room 444, Eskind Biomedical Library
2209 Garland Ave
Nashville, TN 37232-8340
Office: (615) 936-5951
Fax: (615) 936-1427
Email: cindy.gadd@vanderbilt.edu

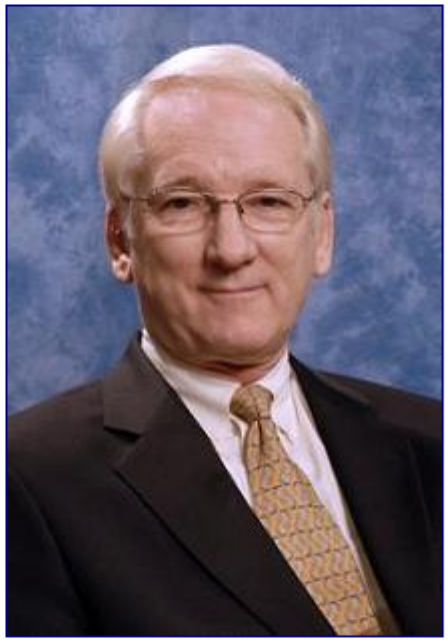
Additional Information on Publications, Presentations, Research Interests from Faculty Database (new window) . .

Dr. Gadd is an Associate Professor of Biomedical Informatics and Director of Educational Programs. She joined the Department of Biomedical Informatics in September 2005 after eight years at the Center for Biomedical Informatics at the University of Pittsburgh, where she directed the Biomedical Informatics Training Program since 2003. Dr. Gadd earned her doctorate in Information Systems from the University of Pittsburgh in 1995 and her masters in Biomedical Engineering/Informatics from Duke University in 1998.

Dr. Gadd has published numerous articles in her primary area of research, implementation and evaluation of integrated clinical information systems, including electronic medical records (EHR) systems, in large health care delivery networks. She has conducted evaluations of a diverse range of health information technologies, including: an integrated, multi-site vendor EHR; web-based guideline-based decision support system; multi-media EHR for outpatient oncology practice; bioscience collaboratories; handheld computing use to support a residency program; and teleradiology and telepathology initiatives. She also directed the evaluation of the Pittsburgh IAIMS initiative. Dr. Gadd has a continued interest in promoting and conducting information system evaluations that address system functionality and effectiveness, as well as user and organizational impacts.

Edward H. Shortliffe, MD, PhD

THE UNIVERSITY OF ARIZONA



Ted Shortliffe

Dean, University of Arizona College of Medicine - Phoenix
Professor of Basic Medical Sciences, University of Arizona College of Medicine - Phoenix
Professor of Medicine (General Internal Medicine), University of Arizona College of Medicine
Professor of Biomedical Informatics, Arizona State University, Phoenix

Medical Informatics in Japan

- Associations
- Departments
- Individual scholars and researchers
    - Articles

JAMI
Japan Association for Medical Informatics

お問い合わせ
Eメール

医療情報研究者や実務担当者の学術交流の場です

English

お知らせ

【重要】7月11日付け日本経済新聞マイクロソフト関連記事について　≫詳細

第27回医療情報学連合大会
2007年11月23日～25日　神戸国際会議場他　≫詳細

第12回日本医療情報学会春季学術大会（シンポジウム2008 in 秋田）
2008年5月30日～31日　アトリオン・秋田総合生活文化会館（秋田市）　≫詳細

≫過去の学術大会 他

TOPICS

2007.08.01　お知らせ　会員種別の追加・変更について

2006.09.21　お知らせ　＜上級医療情報技師能力検定試験について＞
・第1回　上級医療情報技師能力検定試験のお知らせ
一次試験　日程：2007年8月5日（日）
会場：札幌・東京・名古屋・大阪・福岡
二次試験　日程：2007年12月8日（土）、9日（日）
会場：東京

2006.08.31　イベント　MEDINFO　2007のお知らせ（World Congress on Medical Informatics）

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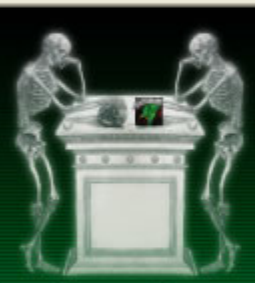

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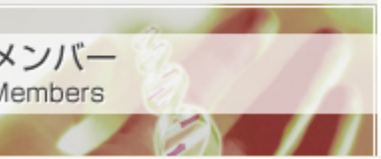

最新ニュース

2007-04-03
拠点リーダーよりご挨拶 NEW

2007-01-07
21COE記念出版 - Future Medical Engineering Based on Bio-nanotechnology Proceedings of the Final Symposium of Tohoku University 21st Century Center of Excellence Programme - を刊行いたしました

more NEWS

最新イベント情報

2007-03-13
21COEセミナー - Computational Modelling of Cerebro-Vascular Flow - が開催されました

2007-01-11

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IHE-J

医療情報連携の仕組みを変える IHE

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- IHE-RO技術委員会の会員募集のご案内

行事・活動カレンダー

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第12回IHEワークショップ in 広島	2007/11/10
第47回日本核医学会学術総会	2007/11/4 ~ 6
第43回日本医学放射線学会秋季臨床大会 第20回電子情報研究会	2007/10/25
第39回日本臨床自動化学会	2007/9/27(終了)
IHE ベンダーワークショップ	2007/9/13(終了)

What's New

Internet

1: AMIA Annu Symp Proc. 2006;:1093.

Computational method of identifying medical complications based on Hospital Information System data.

Shinohara N, Oyama H, Matsuya S, Ohe K.

Clinical Bioinformatics Research Unit, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan.

This study introduces an objective method for identifying limited types of medical complication cases based only on Hospital Information System (HIS) data. To identify medical complication cases, we established an identifying rule, prepared HIS data, and applied the rule to the data. We identified 3 shock cases with intravenous application of contrast media at CT examination by using only one year (2003/4/1 to 2004/3/31) of HIS data from The University of Tokyo Hospital.

PMID: 17238712 [PubMed - indexed for MEDLINE]

1: Int J Med Inform. 2007 May-Jun;76(5-6):412-8. Epub 2007 Jan 16.

The guideline of the personal health data structure to secure safety healthcare. The balance between use and protection to satisfy the patients' needs.

Ishikawa K, Ohmichi H, Umesato Y, Terasaki H, Tsukuma H, Iwata N, Tanaka T, Kawamura A, Sakata K, Sainohara T, Sugimura M, Konishi N, Umemoto R, Mase S, Takesue S, Tooya M.

Healthcare Informatics and Hospital Systems Management Department, Hiroshima University Hospital, 1-2-3 Kasumi, Minami-ku, Hiroshima 734-8551, Japan. Kiyomu@hiroshima-u.ac.jp

PURPOSE: To inform about the impact of a recent movement towards a policy to develop integrative networked electronic health record (EHR) as a basis for cooperation among care teams and with patients and in support of safe patient care in Japan. METHODS: The author headed a commission developing policy for health record (HR) structure and its computerization. It executed two questionnaire surveys as the basis for its work. One survey assessed the current state of computerization of health record in the hospitals certified by Japan Council for Quality Health Care (JCQHC). The other survey assessed the attitudes towards a specific EHR system in the Hiroshima University Hospital and its affiliate hospitals. RESULTS: The survey of the above hospitals showed that most have computer supported administrative procedures, but only few computer-based health records. The attitudes of the Hiroshima EHR users show that while they expect efficiency and quality improvements, there is also apprehension that the system in use might lower practical efficiency and compromise patient safety. Accordingly, health recording requirements and storage policy have been restructured and communicated to the hospitals. CONCLUSION: These insights led to the initiation of curricula educating "Health Information Technologist" which is promoted by Japan Association Medical Informatics and the criterion of Chart Review Promotion of JCQHC. They will also lead to recommendation for improved and advanced EHR.

PMID: 17224303 [PubMed - indexed for MEDLINE]

1: Methods Inf Med. 2005;44(2):310-4.

Health Risk Appraisal using Internet technology.

Suka M, Yoshida K.

Department of Preventive Medicine, St. Marianna University School of Medicine, 2-16-1 Sugao, Miyamae-ku, Kawasaki, Kanagawa 216-8511, Japan. suka@marianna-u.ac.jp

OBJECTIVE: To develop a Web-based Health Risk Appraisal (HRA) system as a tool for health education based on personal health examination data. METHODS: A Japanese health examination database was analyzed to develop models for HRA, which were designed to predict each of ten laboratory values in a year with and without lifestyle modifications. The HRA models were embedded into a server. RESULTS: The Web-based HRA system has been introduced into a Japanese health care association having 37 branch centers. Following a health examination, an individual health education program using the Web-based HRA system is provided to a given client at each branch center or at a client's office. A measured laboratory value and corresponding predicted laboratory values in a year with and without lifestyle modifications are displayed on the screen in forms of both numerical values and graphs. A trained nurse or another health care provider operates the system and explains the HRA result. CONCLUSION: The Web-based HRA system will be a practical tool for individual health education following health examination.

PMID: 15924198 [PubMed - indexed for MEDLINE]

Anyone at Tsukuba?

Researcher Profile

[Education and Experience]

1999.3 Graduated from School of Medicine, University of Tsukuba

2003.7 Graduated from Doctoral Program in Medical

Name

Masafumi Okada

Affiliation

Department of Epidemiology, Institute of Community Medicine ,
Graduate School of Comprehensive Human Sciences,
University of Tsukuba

Title

Assistant Professor

Academic degrees

MD (University of Tsukuba)
PhD (University of Tsukuba)

Research Fields

Epidemiology, Medical Informatics

Researcher Profile

Name

Tetsuya Igarashi

Affiliation

University of Tsukuba (Institute of Clinical Medicine, University of Tsukuba)
Medical Informatics, Field of Advanced Biomedical Applications , Graduate School of Comprehensive Human Sciences

Title

Professor

Academic degrees

MD (University of Tokyo)

Research Fields

Epidemiology and prevention of life-related disease

[Education and Experience]

1973.9 Graduated from School of Medicine, University of Tokyo

1981.10 Research Fellow

1: J Telemed Telecare. 2004;10(4):239-44.

Development of a telenursing system for patients with chronic conditions.

Kawaguchi T, Azuma M, Ohta K.

College of Nursing and Medical Technology, University of Tsukuba, Tsukuba, Japan. kawat@sakura.cc.tsukuba.ac.jp

We have evaluated the feasibility of a telenursing system for patients with a chronic condition who are in receipt of home care services. The Internet-based system allows patients (equipped with a laptop computer), nurses and physicians to access information from a central database through a wireless network (128 kbit/s). Email and video-mail messages as well as vital signs data can be sent daily by the patient to a server at a regional health-care centre, and can be accessed by a nurse or physician, who can then decide on appropriate care. The system was tested by a male patient with type 2 diabetes mellitus, to see whether it would enhance his own management of his condition. During a 73-day baseline introductory period, no specific educational material was provided on the system Website about the management of diabetes (during this time the technical operation of the system was tested). During a second, 71-day period, educational material was provided. The telenursing system helped the patient to manage his condition, as shown by significant improvements in his levels of blood glucose and glycosylated haemoglobin (HbA(1c)) and in his blood pressure. Our findings suggest that the system is feasible.

PMID: 15273035 [PubMed - indexed for MEDLINE]

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- For a hot-linked table of URLs for all the sites and materials in this presentation, please email me:

- Ellen Detlefsen
  - detlefseneg@upmc.edu
  - ellen@detlefsen.com