

# What is Biomedical and Health Informatics? (7/7)

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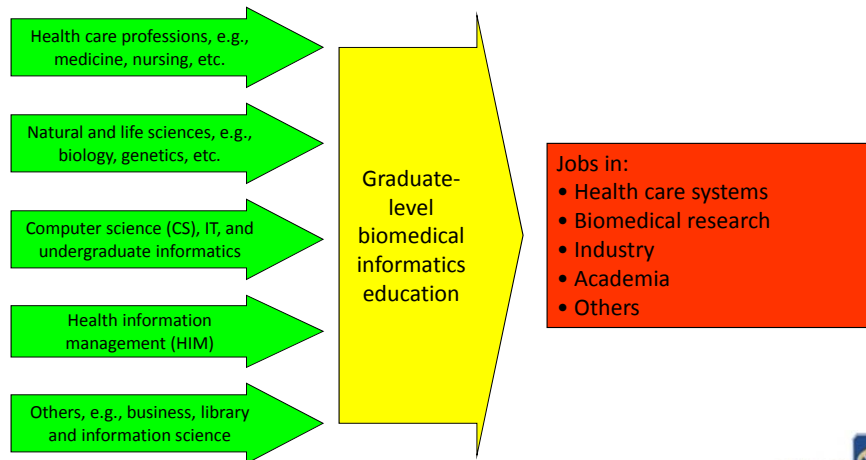
## Informatics education and training

- Since a highly multi-disciplinary field, no standard curriculum or accreditation
  - Listing of US programs on Web site of American Medical Informatics Association
    - <http://www.amia.org/education/programs-and-courses>
  - Description of OHSU program to follow as an example; consult other programs' Web sites for details on their programs
  - International perspective from International Medical Informatics Association (IMIA) recommendations (Mantas, 2010)
- Education has historically focused on academics but is evolving to meet the needs of practitioners and users

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## Career pathways have diverse inputs and outputs



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## Biomedical informatics education at OHSU

- <http://www.ohsu.edu/informatics/>
- All at graduate level
- Academic
  - Predoc/Postdoc Fellowship funded by NLM and VA
  - PhD in Biomedical Informatics degree
  - Master of Science in Biomedical Informatics degree for postdocs from other fields
- Professional
  - Master of Science and Master of Biomedical Informatics degrees
  - Graduate Certificate Program (distance learning)
- Liaison
  - OHSU-AMIA 10x10 program

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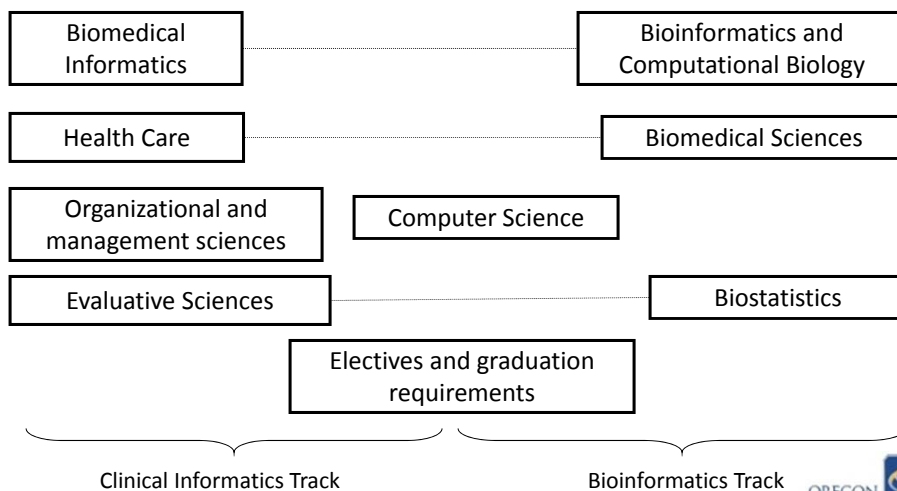
## Informatics curriculum at OHSU – general principles

- Aims to cover the “full spectrum” of biomedical and health informatics (Hersh, 2005; Hersh, 2007)
- Curriculum centered around “knowledge base”
  - Core knowledge at master’s level
  - PhD adds advanced courses and research
  - “Building block” approach allows progression to higher levels
- Have established three “tracks”
  - Clinical informatics
  - Bioinformatics and computational biology
  - Health information management
  - Aiming to establish others, e.g., public health informatics

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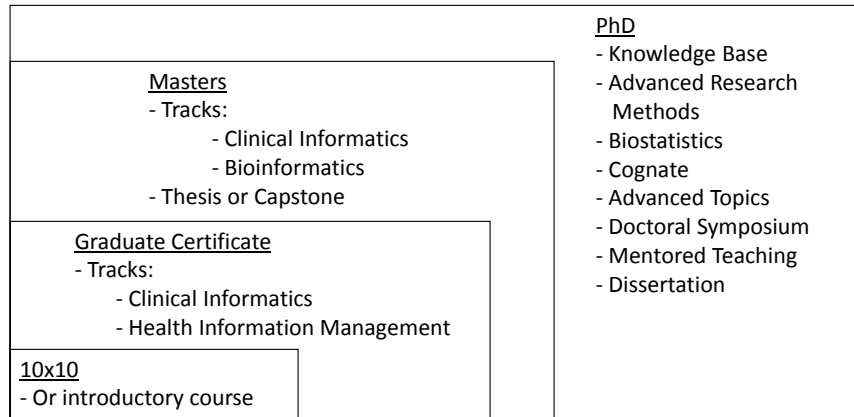
## “Knowledge base” and its “domains”



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## Building block approach to curriculum



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## Educating the liaisons – 10x10

- Partnership with American Medical Informatics Association (AMIA) to meet Safran's (2005) stated need to educate one physician and one nurse from each of the 6000 US hospitals in informatics
  - Original goal to educate 10,000 healthcare professionals by 2010
- Course consists of introductory on-line course and adding one-day face-to-face session
  - Initial offerings well-received (Hersh, 2007; Feldman, 2008)
  - Over 1000 have completed by 2010
    - About 15% going on to further study
  - Program has continued beyond 2010
  - Other partners are also offering courses



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## Topics of OHSU 10x10 course

- Overview of Field and Problems Motivating It
- Biomedical Computing
- Electronic and Personal Health Records (EHR, PHR)
- Standards and Interoperability; Privacy, Confidentiality, and Security
- Meaningful Use of the EHR
- EHR Implementation and Evaluation
- Evidence-Based Medicine and Medical Decision-Making
- Information Retrieval and Digital Libraries
- Imaging Informatics and Telemedicine
- Translational Bioinformatics and Personalized Medicine
- Organizational and Management Issues in Informatics

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## Educating beyond OHSU – distance learning

- (Hersh, 2001)
- Initially in Graduate Certificate, later master's
- Teaching modalities include
  - Voice-over-Powerpoint lectures
  - Threaded discussions
  - Readings, virtual projects, etc.
- Courses are not correspondence courses; interaction is a core component
- Have created a virtual community
  - Meet at AMIA, HIMSS, OHSU, etc.

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## New models for education can be developed with this technology

- Delivery to many parts of the globe, e.g., South America, Africa, etc.
- Translation of 10x10 course into Spanish for Latin American audience (Otero, 2010)
- Offered in partnership with *Hospital Italiano* of Buenos Aires, Argentina
- Over 600 participants from across Latin America have completed course



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## Current and future directions

- OHSU program continues to innovate and grow
  - Over 600 have matriculated since inception
  - Over 300 alumni with jobs in healthcare settings, academia, industry, and elsewhere
- Funding for study of clinical informatics available for eligible students through, among others,
  - ONC UBT program – winding down with end of HITECH funding
  - National Library of Medicine Training Grant

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## Bringing it all together

- To achieve the vision of BMHI, we cannot lose focus of the information as well as the scientific processes to determine how to use it most effectively
- Informatics-trained professionals will lead the use of IT to improve healthcare and biomedical research
- Exciting research areas on the horizon
  - Improving healthcare delivery
  - Enabling of patients and consumers in healthcare
  - Genomics, bioinformatics, and personalized medicine
  - Mining data to analyze and generate hypotheses for future biomedical research
- And how will the grand experiment of HITECH play out?

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## For more information

- Bill Hersh
  - <http://www.billhersh.info>
- Informatics Professor blog
  - <http://informaticsprofessor.blogspot.com>
- OHSU Department of Medical Informatics & Clinical Epidemiology
  - <http://www.ohsu.edu/informatics>
  - <http://oninformatics.com>
  - <http://www.informatics-scholarship.info>
- What is BMHI?
  - <http://www.billhersh.info/whatis>
- Office of the National Coordinator for Health IT
  - <http://healthit.hhs.gov>
- American Medical Informatics Association
  - <http://www.amia.org>

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