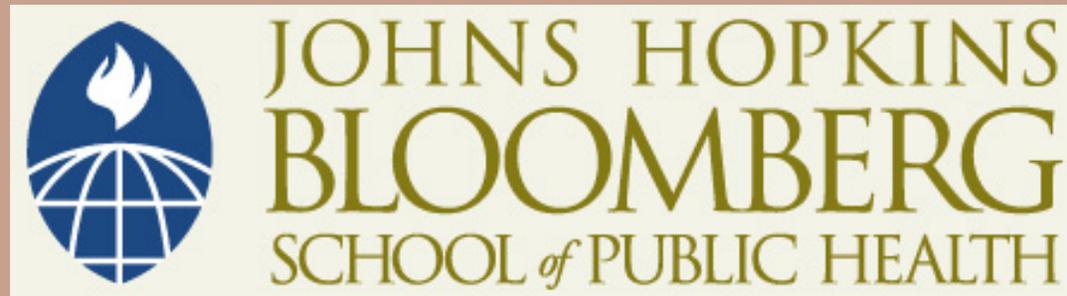


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JOHNS HOPKINS  
UNIVERSITY

Welcome to *Standards and Interoperability  
in Health Systems*

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## A Little Bit About Me

- PhD, Moscow State University
- Soviet Union
  - Technology in industrial waste
- United States
  - Lead poison prevention program, Kennedy Krieger Institute
  - Health sciences informatics program



# Course Aims

- Learn from the experiences of you and your colleagues
- Course designed for “users”
  - Public health practitioners
  - Clinicians
  - Health educators
  - Others who work with technology on a daily basis

# Course Objectives

- Describe health information exchanges (HIEs) between clinical and public health/population health data systems
- Explain the main categories of health information technology (HIT) standards
- Discuss HIT standardization processes and entities
- Describe the role of users in HIT standardization
- Participate in the design of information systems in public health

# Expectations

- At the end of the course, you should be able to:
  - Discuss HIT standardization processes and entities
  - Participate as users in HIT standardization activities
  - Develop a functional requirements specification document (functional standard) for the information system for a specific public health problem/domain

# Course Topics

1. Towards a Nationwide Health Information Network
2. HIT Standards and HIT Standardization
3. Health Information Systems Interoperability

# Course Topics

4. Towards Business Process Standards
5. Functional Standards
6. Data Content Standards
7. Information Content Standards
8. Information Exchange Standards
9. Identifiers Standard
10. Privacy and Security Standards

# Course Topics

11. Harmonization and Trial Implementation
12. Testing and Products Certification
13. International Perspectives
14. You will present a functional requirements specification document for an information system for a selected public health problem
15. Deployment of Standards-Based HIT Solutions in Public Health Practice: Case Studies

# Course Assignments

- Discussion questions for each topic
- Group project—student presentation
  - Design of the information system for a selected public health problem
- Group project—final assignment
  - Functional requirements specification document for an information system for a selected public health problem (domain)

# Final Assignment

- Develop the 10-page functional requirements specification document (requirement analysis document [RAD]) for a selected clinical-public health information exchange
- Due date: two weeks after final session of course

# Final Assignment: Interoperability

- Outline
  1. Introduction
    - 1.1. Description of a public health (or clinical) problem (domain) (business processes)
    - 1.2. Purpose of the proposed information system
    - 1.3. Actors and scope of the proposed system
    - 1.4. Objectives and success criteria of the project
  2. System requirements
    - 2.1. Functional requirements
    - 2.3. Non-functional requirements
  3. System models
    - 3.1. Use case(s) description
    - 3.2. Use case models
      - 3.2.1. Use case diagram(s)
      - 3.2.2. Dataflow and workflow diagram (activity diagram)
    - 3.3. High-level system architecture
  4. Selected standards
  5. Hardware and software requirements
  6. Testing/evaluation plan
  7. Project development timeline

# Functional Requirements Specification Document

- Functional requirements specification—functional requirements analysis document (FRAD)
  - Describes a problem as a business process (e.g., taking care of patient, conducting a public health case investigation or disease surveillance or health education) for which public health practitioners, clinicians, patients, and the public need to exchange information using information technology (database, information system)
  
- The FRAD describes your (user) needs for the information system (business processes and functional requirements for the system)
  - In your own words
  - In the format of the requirements analysis document (RAD)
  - That will help IT vendors to better design an information system
  - That will meet your (user) needs

# Final Assignment Grading

- The assignment will be graded on two criteria
  1. The extent to which the document is internally consistent
  2. The extent to which informatics concepts from lectures and readings are utilized
- The document is limited to 10 pages maximum, excluding the title page
  - Only the first 10 pages of the document will be graded
- The title page will include:
  - Name of the project
  - The names of the group members with their roles in the project
- The reference list will be included in the 10-page limit

# Interoperability

- Health information technology standards and systems interoperability
  - **Student presentation**
    - ▶ Each students will develop a MS PowerPoint™ presentation on the *Functional Requirements of the Information System for a Selected Clinical-Public Health Information Exchange* describing the process of the development of the functional requirements for the information system for the public health problem selected for the final assignment
    - ▶ **Presentations are due one week after Session 12.** They will be open for viewing and comments from the class during Session 14.

# Student Presentation: Interoperability

Outline	
Slide 1	Title, list of group members with roles in the project
Slide 2	Public health (clinical) problem overview
Slide 3	Information systems overview and scope
Slide 4	Information systems goals ( <u>WHAT</u> )
Slide 5	Actors (perspectives) ( <u>WHO</u> )
Slide 6	Functions that system will support ( <u>HOW</u> )
Slide 7	Nonfunctional requirements
Slides 8 and 9	Use case(s); use case diagram(s); workflow and dataflow diagram(s)
Slide 10	Proposed system architecture
Slide 11	Selected standards
Slide 12	Hardware and software requirements
Slide 13	Evaluation plan
Slide 14	System development timeline and deliverables

# How to Organize Your Group Project

- Students will work in groups of from four to six persons representing the following participants in the design of the information system:
  - From two to four actors-users (physician, laboratory personnel, public health official, researcher, funder, etc.)
  - One system designer
  - One project manager—group leader

# Student Evaluation

- Student evaluation will be based on:
  - Participation in class discussions (33%)
  - Student presentation (33%)
  - Final assignment (34%)
- Grades will be assigned based on demonstrated ability to utilize concepts from lectures and readings

# Resources

- Reading materials will be available online
- Please feel free to recommend additional resources

## An Added Note

- Repetition
  - Several standards-development organizations appear throughout the lectures—this repetition is deliberate because these organizations are developing different types of standards that we will cover in this course
- Guest speakers
  - We will have several guest lecturers who may bring different perspectives on the subject matter

# How to Succeed in This Course

- Plan each week to accommodate this course's **significant workload**
- Read the syllabus
- Follow the instructions throughout the course Web site
- Listen to all lectures
- Plan sufficient time to complete group assignments
- Participate fully in group work
- Complete all assignments on time

# This Course Is a Course on Standards

- Standards = doing things in a certain way
- These standards are necessary so that machines, i.e., information systems, will be able to support your work
- Please do not view this approach as a limitation or pressure, but as a necessary structure

Coming up Next ...