

New Course Request

Indiana University

IUPUI

Campus

Check Appropriate Boxes:

Undergraduate credit

Graduate credit

Professional credit

1. School/Division Informatics 2. Academic Subject Code INFO-I

3. Course Number 581 (must be cleared with University Enrollment Services) 4. Instructor Schadow

5. Course Title Health Informatics Standards and Terminologies

Recommended Abbreviation (Optional) Health Info Stds and Terms

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Fall 2008

7. Credit Hours: Fixed at 3 or Variable from _____ to _____

8. Is this course to be graded S-F (only)? Yes _____ No X

9. Is variable title approval being requested? Yes _____ No X

10. Course description (not to exceed 50 words) for Bulletin publication: Health information standards specify representation of health information for the purpose of communication between information systems. Standards not only standardize data formats, but also the conceptualizations underlying the data structures. The design process of data standards, domain analysis, conceptualization, modeling, and the methods and tools commonly used are explored.

11. Lecture Contact Hours: Fixed at 3 or Variable from _____ to _____

12. Non-Lecture Contact Hours: Fixed at _____ or Variable from _____ to _____

13. Estimated enrollment: 10 of which 100 percent are expected to be graduate students.

14. Frequency of scheduling: yearly Will this course be required for majors? yes

15. Justification for new course: Core course for MS and PhD students in health informatics

16. Are the necessary reading materials currently available in the appropriate library? yes

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant. **This does not overlap with other courses.**

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by:

Approved by:

M. Palakal Date 4/18/08
Department/Division Director

M. Palakal Date 4/18/08
Dean

Date _____
Dean of Graduate School (when required)

Date _____
Chancellor/Vice-President

Date _____
University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

I581 Health Informatics Standards and Terminology

Fall 2009 Regenstrief Institute, HITSB, 2nd Floor, 3 Credit Hours

Instructor: Gunther Schadow

Office Address: Regenstrief Institute (HITSB), 410W 10th Street, Indianapolis, IN 46202

Office Phone: 317 423 5521

Office Hours: Mo-Fr all day, please email or call for appointment.

Email Address: gschadow@iupui.edu

Administrative Assistant: Sandy Poremba, Regenstrief Institute sporemba@regenstrief.org:
317 423 5500

Online Resource (Wiki): <http://aurora.regenstrief.org/health-info-standards>

The Mission of IUPUI is to provide for its constituents excellence in

- Teaching and Learning
- Research, Scholarship, and Creative Activity
- Civic Engagement

With each of these core activities characterized by

- Collaboration within and across disciplines and with the community
- A commitment to ensuring diversity, and
- Pursuit of best practices

IUPUI's mission is derived from and aligned with the principal components Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices of Indiana University's Strategic Directions Charter.

1 Statement of Values

IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning. IUPUI values the opportunities afforded by its location in Indiana's capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community; both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.

2 Required Texts

Reading will be provided and assigned during the course.

3 Equipment needed

- Computer with email and web access for participating in the online parts of the course (notes, supplemental material, assignments, etc.)
- Any appropriate equipment to create papers and presentations.

- Practical assignments can be carried out on various equipment, including own PC or Laptop, general computer labs and IUPUI Unix servers.

4 Course Description

Health information is captured as data of various formats and types. If health data is to improve patient care or if research data from different sources need to be joined together health information standards are needed. Health information standards exist for data types and structures for messages, databases and documents as well as for the nomenclature of the myriad conceptual entities that are relevant for the biomedical domain (terminologies). The field of health information standards is also rapidly evolving. This course gives an overview of the established standards for health care data interchange, and for the rapidly evolving field of biomedical informatics. The course will expose the principles and methodologies underlying most standards and also introduce the student to practical issues of reading and understanding specifications, implementing, and translating between standards.

5 Course Outcomes

Upon successful completion of this course, the student will have a deep understanding of principles of data and knowledge structures for healthcare and the fundamentals underlying their design and applications. The student will have gained an overview of the most relevant existing standards in the health care and bio-medical research domain, and will have a practical idea how standards are implemented technically and organizationally. The student will also have learned to critically assess standards and to be able to participate in standards development.

6 Core Competencies

Analysis of information phenomena in health care, information structure design (modeling), terminology design, and design of system-system and intra-systems interactions.

Software Used: Various, introduced in the course.

7 Online Resource

Please note that the Oncourse system will not be used after initial contact has been established. Instead a Trac site, which includes Wiki and ticket-tracking system, is available at: <http://aurora.regenstrief.org/health-info-standards> We will however use the IUPUI email list for this course, which is FA07-IN-INFO-1590-29987@oncourse.iu.edu Generally we will use the email list for distribution notifications of new Wiki content, not for extensive discussions. Experience has it that much valuable information gets lost in email archives, whereas it is much more accessible on the Wiki.

8 Expectations

- Attendance in class is required, if a class has to be missed, prior notification is required (see contacts above).
- Lecture notes (see below).
- Participating in Online Components.
- Exams/quizzes (minimal)
- Homework (Lab) assignments
- Class assignments

9 Tentative Class Schedule

1. Introduction, ISO/OSI Layers
2. Laboratory Reporting Standard, ASTM E1238
3. HL7 v2
4. Implementation Principles
5. Other Existing Standards EDIFACT, X12, DICOM, MIB
6. IEEE MEDIX, CEN TC251, and HL7 version 3 principles
7. Terminologies, ICD, LOINC, IUPAC C-NPU
8. Terminologies on Biological Structures, FMA, GO
9. Terminology Principles, UMLS, Description Logics, SNOMED
10. Terminology Analysis UMLS, SNOMED, NCI Thesaurus
11. Standardizing Quantitative Data, Measurements, Units, Uncertainty 12) Standardizing Dynamic Behavior
12. HL7 v3 standard
13. HL7 v3 data types
14. HL7 v3 protocol design
15. HL7 v3 protocol design
16. Final Review/Exam

10 Grading Scheme

Final grades will be a weighed composite of many smaller grades. This should create a fair result.

- 40% Practical assignment(s) - There will be several practical assignments, and the ability of getting something done is the whole point of our discipline, so we need to assign most points to this.)
 - 4 - Exceptional quality - highly innovative work, innovative goals, masterly execution, exceeding the requirements (enabling new uses beyond the immediate goal), innovative use of the tools.
 - 3 - Superior quality - set an innovative goal, demonstrates understanding of the goal, meets the requirements elegantly and clearly, demonstrates mastery of the tools.
 - 2 - Satisfactory quality - demonstrates basic understanding of the goal, meets the requirements even if somewhat unclear how, demonstrates basic understanding of the tools.
 - 1 - Does not meet expectations - lacks understanding of the goals, does not meet the requirements, lacks understanding of the tools.
 - 0 - Assignment not completed

We will consider that topics are introduced over a short period of time and that the tools may not all be known well at the time of the project.

- 20% Paper - a key skill in any academic discipline. Each student should create one such paper, in publishable quality. This may be a presentation of an idea, may be a review paper, and may include evidence based research if time allows. We will go at least one round of revisions on it, so, even though it will be one paper, you will have a chance of improving it iteratively before receiving the final marks.
 - 4 - Exceptional quality - conveys a significant insight, good clarity of thought and point, conciseness, economic use of language, well organized, "camera ready manuscript"
 - 3 - Superior quality - content demonstrates good understanding of the subject, generally clear and well organized, good draft manuscript.

- 2 - Satisfactory quality - demonstrates basic understanding, organization and clarity at the level of a first draft manuscript.
 - 1 - Does not meet expectations - insufficient content, organization confused, nebulous thought.
 - 0 - Assignment not completed
- 20% Oral presentations - There will be several oral presentations (textbook topic, paper, and any other work), so that each should not account for more than 5% giving you a chance to improve, taking away some stress, and balancing the subjectivity of the rating of presentation. Specific critique of the presentation will be offered to support the rating. Visuals will be included in the rating.
 - 4 - Exceptional quality: presentation is breath taking, catches the audience, is clear and illuminating. Visuals supplement the speakers point and add clarity, but speaker presents the topic not the visuals. Presentation is thought provoking and provides enough food for productive thought.
 - 3 - Superior quality: presentation is clear and illuminating, audience can follow easily. Visuals used as an aid to the speaker, speaker's performance may at times (but not throughout) resemble a dia-show ("this slide shows ..."). Presentation provides enough material for discussion.
 - 2 - Satisfactory quality: presentation is not clear, audience gets somewhat confused at times, visuals are main support for the speakers performance, speaker mostly discusses the visuals and his talk rather than the topic itself. Speaker speaks to the screen more than to the audience. Presentation covers the most important material to make audience understand some key points of the subject.
 - 1 - Does not meet expectations: presentation is confusing, does not bear much of a clear point. Leaves many questions, and little food for thought.
 - 0 - Assignment not completed
- 10% Participation in group discussions - Assesses the depth of reading, and understanding, formulation of original ideas, and participation in collective understanding.
 - 4 -Exceptional quality (not quantity); shows that student has completed all reading assignments; demonstrates applied level of understanding through personal reflections; answer is well-developed and logically reasoned; provides original insights or responses; extends comments of others; supports and leads others in discussion, respects others and their ideas.
 - 3 - Superior quality (not quantity); evident that individual has completed all reading assignments; demonstrates applied level of understanding through personal reflections; answer is provided, logic may not be clear; provides original insights or responses; makes connections to what others say; respects others and their ideas.
 - 2 - Satisfactory quality and quantity; evident that individual has completed all reading assignments; primarily consists of summary or paraphrasing of readings; answer is not fully developed; logic is not clear; contribution is primarily a response to others; minimal originality; respectful of others and their ideas
 - 1 - Does not meet expectations; not clear that individual has completed reading assignments; only consists of summary or paraphrasing of readings; minimal effort put into answer; is not respectful of others and their ideas.
 - 0 - Assignment not completed.
- 10% Final exam test - Yes, we will have one of those, but overall weight is limited because it is not going to be a validated instrument.

Grade Category	Grade	Score Requirement *
Outstanding	A+	>93
Excellent	A	[87, 93)
Very Good	A-	[80, 86)
Good	B+	[73, 79)
Satisfactory	B	[67, 72)
Reasonable	B-	[60, 66)
Fail	F	0-59

11 Other Policies

- All students are responsible for reading the Code of Student Rights, Responsibilities and Conduct of IUPUI.

Americans with Disability Act:

If you need any special accommodation due to a disability, please contact Adaptive Educational Services at (317) 274-3241. The office is located in CA 001E.