I. COURSE DESCRIPTION

Provides a seminar-oriented overview of health informatics, which addresses information phenomena and resource utilization within the basic health sciences and healthcare, including practices, education, research, administration, and enterprise. Covers the past, current and future development of health informatics; electronic health records; public health informatics; imaging; practice management systems; information exchange; architectures; data standards; privacy and security; consumer informatics; mobile technology; search engines; evidence based healthcare; clinical practice guidelines; telehealth; bioinformatics; quality improvement; public health informatics; emerging trends. Incorporates nursing informatics.

Pre-requisite: Graduate standing

II. OBJECTIVES, REQUIREMENTS AND GRADING

1. To fulfill learning objectives for each key topic (textbook chapter headings) of the course. Requirement: Brief individual oral presentations to demonstrate achievement of learning objectives and/or web sites listed in each chapter of the textbook. Specific learning objectives will be assigned to each individual (30% of course grade).

2. To select one of the leading electronic health record vendor’s leading system (practice management system). Requirement: Submission of a
brief paper on the competitive strengths and weaknesses of that vendor’s leading system and the company’s strengths and weaknesses.

Alternatively, you may select a leading mobile healthcare technology to analyze for its relative competitiveness (30% of course grade).

3. To understand health informatics as a professional field and to prepare to contribute to the advancement of the field’s knowledge. Requirement: Completion of a short, take-home exam (30% of course grade).

4. Consistent, positive and constructive seminar participation (10% of course grade).

III. REQUIRED TEXTBOOK


Please note the extensive list of references and web sites contained in the “References” sections at the end of each chapter.

(Note: The instructor will discuss selected chapters in Shortliffe, E. H. and Cimino, J. J., eds. (2006). Biomedical Informatics: Computer Applications in Health Care and Biomedicine (3d. ed) NY: Springer. ISBN: 10-387-28986-0. This pioneering book has been used previously as a textbook for this course, but parts of the book are now too dated. Additionally, works in the field of nursing informatics are useful).

IV. EXAMPLES OF SUPPLEMENTARY SOURCES (not required; order of listing is random)


V. GUIDELINES FOR COMPLETION OF REQUIREMENTS

**Requirement 1:** Oral presentation relevant to assigned chapter learning objective.

For each chapter in *Medical Informatics*, you will be assigned a specific chapter learning objective listed at the beginning-of-chapter. Please discuss your response to the learning objective in class within about **three minutes**. Because we will be covering two chapters per week, these three-minute presentations will allow us to cover all of the chapters during the semester. You might treat each learning objective as a potential **job interview question**, and should thus be brief. You may relate the question to a specific career setting of interest, and point out the question’s implications for future system development.

You will be assigned either the first, second or third, etc. learning objective listed at the start of each textbook chapter. For example, if assigned question number 1, you will take the first beginning-of-chapter learning objective (for all chapters) and present your response. If assigned number 5, you will take the 5th learning objective from each chapter and present your response. Thus, you would have something like 23 learning objective responses to present to us over about 11 weekly seminar sessions (since the textbook contains a total of 23 chapters).

In this way, we can consider all 110-plus learning objectives in the textbook.

**Please note:** some chapters might not have enough chapter learning objectives for assignment to each enrolled individual, particularly if enrollment is greater than anticipated. If there are not enough learning objectives in given chapters to be assigned, you may augment our consideration of chapter topics by presenting and discussing briefly a relevant web site listed in end-of-chapter references. Or you may summarize a relevant published article or book.

You should read each chapter prior to considering and discussing each learning objective or web site. Presentations should be relatively concise--delivered in about three or so minutes.

If you have to be absent, you may ask a classmate to discuss your learning objective or present the following week.

Each presentation counts for one point of credit (total about 23 points) and about seven points will be awarded for overall presentation effectiveness (total, 30% of course grade).

**Requirement 2:** Submission of a short paper on the evaluation of a leading electronic health record system (or practice management system or mobile technology) and the competitive business strength of its vendor.
A list of leading electronic health record (EHR) vendor companies will be discussed. You might wish to seek an affiliation with one of the vendor companies since conversion from paper health records to EHRs is a near-term national and global priority.

Individuals or no more than two partners should (1) select one of the leading vendors; (2) analyze the vendor’s leading system’s strengths and weaknesses, including the system’s interoperability and its actual or potential role in an practice management system—see relevant textbook chapters; (3) analyze the competitive strengths and weaknesses of the vendor, including its operating policies and practices; (4) analyze the vendor company’s security—stock or corporate bond—offering(s); (5) briefly discuss the electronic health record’s relationship to other textbook chapters, including public health preventive care, patient informatics, etc. (6) any other relevant points you wish to make.

Alternatively, we will discuss some leading clinical mobile healthcare technologies—you may select a mobile healthcare technology to study. Please follow the analogous guidelines in the above paragraph to conduct your analysis of a selected mobile clinical technology.

Papers should be no longer than 12 pages typed double spaced and should include an introduction and conclusion. Please include references formatted according to form and style used in the textbook. Better yet, you may follow the form and style and citation protocol of a journal to which you might submit for publication. Please designate the specific journal that might accept your paper.

Paper grading criteria include the quality of analysis of points 2 through 6 listed above (30% of course grade).

**Requirement 3: Completion of short-answer take-home exam.**

The take-home exam will be probably consist of 5 or 6 short-answer questions and be focused on such topics as these: emerging trends (some of which are discussed in Chapter 23); synthesis of chapter learning objectives and class discussions; the potential role of public health preventive care and population treatments—as opposed to curative health care and individual treatment; the emergence of medical tourism within the US and globally; potential of EHRs in public health disease control and prevention; etc.

Exam answers will count for 30 % of the course grade.

**Requirement 4: Consistent, constructive and positive seminar participation.**

Please try to attend regularly, contribute to the achievement of learning objectives, and share your insights. Try to neither monopolize discussions nor be
too quiet. Use of laptop computers in the classroom should be related to each week’s learning objectives, including discussions.

Students with disabilities may request appropriate academic accommodation from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259.

VI COURSE CALENDAR (subject to change)

Monday

August 29
• Introduction to course
• Introductions and biographies
• Discussion of requirements

September 5
• No class (Labor Day)

September 12
• Discussion of web sites: CDC, AMIA, ANIA, IMIA, MLA, NIH, NLM, HIMSS & CAM sites
• General discussion of Hoyt, Chapter 1 (overview)
• Further discussion of requirements
• Assignment of chapter learning objective number sequence

September 19
• Discussion of Chapter 2 and 3’s learning objectives/web sites (EHRs and practice management systems)
• Discussion of electronic health record, etc. assignment

September 26
• Discussion of Chapter 4 and 5’s learning objectives/web sites (health information exchange and architectures)
• Discussion of written report on electronic health records or mobile technology
• The global and integrative health care movements

October 3
• Discussion of Chapter 6 and 7’s learning objectives/web sites (data standards and privacy/security)

October 10
• Discussion of Chapter 8 and 9’s learning objectives/web sites (consumer informatics and online medical resources)
October 17
- Discussion of Chapters 10 and 11’s learning objectives/web sites (search engines and mobile technology)
- Discussion of global/integrative medicine and medical tourism

October 24
- Discussion of Chapter 12 and 13’s learning objectives/web sites (evidence based medicine and clinical practice guidelines)
- Discussion of papers

October 31
- Discussion of Chapters 14 and 15’s learning objectives/web sites (disease management and registries; quality strategies)
- Discussion of papers and take-home exam

November 7
- Discussion of Chapters 16 and 17’s learning objectives/web sites (patient safety and health information technology; and electronic publishing)
- DUE: Paper on electronic health record system or alternate topic

November 14
- Discussion of Chapter 18’s and 19’s learning objectives/web sites (telehealth and telemedicine; and PACs)
- Discussion of submitted papers
- Discussion of research sponsors in health care and health informatics
- Take-home exam issued

November 21
- Discussion of Chapter 20 and 21’s learning objectives/web sites (bioinformatics and public health informatics)

November 28 (last class)
- Discussion of Chapter 22 and 23’s learning objectives/web sites (e-research and emerging trends)
- Address envelopes to mail graded exam answers to your home address
- Seminar Survey

December 5 (not a class day)
- Take home exam answers DUE. Please submit a hard copy to the instructor’s mailbox (5th floor). Alternatively, submit answers electronically as a Word attachment.