

The University of Massachusetts at Boston
College of Management
MSIS 632: Introduction to Health Informatics
Fall 2018

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I Course Materials

There is no textbook required for this course. Course materials consist of audio and videos presentations made possible by a team of medical and IT professionals at John Hopkins University. These materials are supplemented by case studies, articles, and have been customized to fit the structure and design of our online certificate. All materials will be available to students, at no cost, on the Blackboard Learning System (BLS). Detailed instructions will be provided as for how and where to access the course materials for each session.

Required Resources: Computers with enough processing power, storage capacity (hard drive), and memory (RAM) capacity, Microsoft Office 2010, 2013, 2016, or office 365, Flash player (free download), mp3 player (free download), Learning Management System (Blackboard).

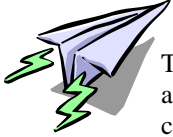
Students are required to have access to computers with sound system (e.g., Desktop, Laptop, Mac) with a compatible operating system (e.g., Windows, Mac OSX, Linux), software allowing the viewing of multimedia (e.g. Videos in MP3, and Microsoft Office to view PowerPoint), and Internet Connection fast enough to have effective interaction (e.g. Comcast Internet, DSL, Verizon FIOS.)

Important: Students are also required to have access to computers with enough capacity to run the Computerized Patient Record System (CPRS). Please be reminded that the instructor is not responsible nor can help you with the inability of your computer to store and run the sophisticated applications used in this course- the power of your computer is your business and your responsibility.

II Course Description

This is a survey course that provides an overview of relevant concepts in healthcare information technology. This introductory course assumes that students have little knowledge about terminologies on healthcare, information technology, and the affiliation between the two. The course provides core definitions and concepts of healthcare and healthcare informatics. Attributes and functions of Electronic Health Records (EHR). Health Information Technology (HIT) systems from a variety of settings as well as some functional aspects of interoperability within and between systems are examined. The concepts of usability, consistency, and reliability in regards to HIT systems and how each contributes to or detracts from, effectiveness will be presented. An overview of the concepts of privacy, security, and confidentiality of protected health information (PHI) about HIT systems will be presented. Patient-centered care will be defined and explained. We conclude the course with a focus upon future directions for a HIT. New areas of research and development in HIT will be examined. Students will gain a foundational understanding of these areas and will have an opportunity to debate appropriateness and feasibility of new HIT development capacities.

III Learning Objectives



The main objective of this introductory course is to present the principal concepts in healthcare informatics and create a foundation for learning the remaining courses offered by the certificate. At the completion of this component, the student will be able to:

1. Define a system and relate concepts to HIT
2. Identify the health IT functions that support generic ambulatory patient care and inpatient care processes.
3. Learn the Computerized Patient Record System (CPRS), which is a Veterans Health Information Systems and Technology Architecture (VISTA) computer application.
 - a. CPRS enables you to enter, review, and continuously update all the information connected with any patient. With CPRS, you can order lab tests, medications, diets, radiology tests and procedures, record a patient's allergies or adverse reactions to medications, request and track consults, enter progress notes, diagnoses, and treatments for each encounter, and enter discharge summaries. Also, CPRS supports clinical decision-making and enables you to review and analyze patient data.
4. Define patient-centered care and suggest HIT-enabled solutions/strategies to enhance patient involvement in health and healthcare.
5. Assess the effectiveness of HIT systems in supporting patient-centered care.
6. Discuss the trajectory for the future innovations in HIT.

IV Course Format

A set of videos and audio presentations will be used as teaching tools. Case studies will demonstrate HIT in a real-world setting. Weekly online discussions will allow students to share ideas and exchange information about relevant topics for each week. Weekly quizzes keep students on board and are anti-procrastination, common to online courses. A term paper is required as the final testament of what you have learned in the course. Students are required to search and find scholarly and relevant articles and write a brief **critique** of the article. The purpose of this exercise is to expedite and complement research necessary for writing the required term paper for the course. You must submit a total of five articles throughout the semester, but have the option of submitting any five of your choice (ideally those that support your likely topic for the term paper.) The submitted articles are evaluated, and students earn points based on the articles' relevance and quality. All course materials will be posted on the Blackboard Learning system and therefore can be viewed through browsers.

V Evaluation



Quizzes	15%
Participation in weekly discussion Forum	10%
VISTA hands-on exercises	25%
Activities & Case Analysis	10%
Term Paper	30%
Article submissions	10%
Total	100%

Points	Percent	Grade
470-500	94-100	A
450-469	90-93	A-
435-449	87-89	B+
420-434	84-86	B
400-419	80-83	B-
385-399	77-79	C+
370-384	74-76	C

VI Weekly Schedule

Week	Topic	Delivery method/tool	Activity/discussion/ quiz
Sept. 10 W-0	Discuss course, syllabus, student Introduction, Understanding the requirements of the course, download Flash and MP3 Players,		
Sept.17 Week-1	Healthcare domain: Explore components of healthcare delivery and healthcare systems.	PowerPoint slides accompanied by four audio Lectures	1. Quiz 1 2. Participation in Discussion Forum 3. Article 1
Sept. 24 W-2	Health Informatics: Characteristics and types of HI and technologies supporting it	PowerPoint slides accompanied by four audio –lectures.	1. Quiz 2 2. Activity week-2 3. Article 2
Oct.1 W-3	Electronic Health Records Decision Support Systems	PowerPoint slides accompanied by four audio –lectures.	1. Quiz 3 2. Install CPRS application software 3. Article 3
Oct. 8 W-4	Working with IT systems Introduction & Overview: Components of HIT Systems.	PowerPoint slide accompanied with one audio –lecture. CPRS User Guide VISTA videos instructions	1. Activity week-4: Hands-on CRPS exercises 2. Article 4
Oct. 15 W-5	Working with Health IT Systems: IT functions that support <i>ambulatory and inpatient</i> care processes. Information Exchange in HIT System.	PowerPoint slide accompanied by three audio –lecture. CPRS User Guide VISTA videos instructions	1. Activity week-5: Hands-on CRPS exercises. 2. Quiz 5 3. Article 5
Oct. 22 W-6	Working with Health IT Systems: The Effective HIT System	PowerPoint slides accompanied with one audio –lectures. CPRS User Guide VISTA videos instructions	1. Activity week-6: Hands-on CPRS exercises. 2. Article 6 3. Term paper topic
Oct. 29 W-7	Working with Health IT Systems: Fundamentals of Usability in HIT Systems—What Does it	PowerPoint slides accompanied by two audio-lectures.	1. Activity week-7: Hands-on CPRS exercises. 2. Activity week- 7: Usability 3. Article 7

	Matter?	CPRS User Guide VISTA videos instructions	
Nov. 5 W-8	HIT Facilitated Error— Cause and Effect Protecting Privacy, Security, and Confidentiality in HIT Systems	PowerPoint slides accompanied with 4 audio-lectures CPRS Application	1. Activity week-8: Cause and Effect CPRS activity 2. Quiz 8 3. Article 8
Nov. 12 W-9	HIT System Planning, Acquisition, Installation, & Training: Practices to Support & Pitfalls to Avoid	PowerPoint slides accompanied with 3 audio-lectures Case Study CPRS Application	1. Activity week-9: Acquisition, Installation, & Planning Applica CPRS activity 2. Case Study 3. Article 9
Nov. 19 W-10	HIT and Aspects of Patient- Centered Care	PowerPoint slides accompanied by two audio –lectures	1. Activity week-10: HIT and Aspects of Patient-Centered Care 2. Article 10 3. Abstract of the term paper
Nov. 26 W-12	Health IT in the Future	PowerPoint slides accompanied by two audio –lectures.	1. Activity week-11: Health IT in the Future 2. Article 11
Dec. 3 W-13	submission of a research paper		

Please note: this is our preliminary schedule- It could be changed, if need, with proper notice. Students are to submit only 5 out of 11 articles

VII Administrative Notes

Assignments and Exams

- Under no circumstances can any assignments be submitted through UMB e-mail (use Blackboard Learn email/message); the potential for viruses, even unknown to the sender, is too great and the chances are high that external e-mail would be filtered as SPAM.
- All assignments that are turned in late will receive half credit. If you do not understand an assignment, it is your responsibility to seek clarification.

Disability service

- The Lillian Semper Ross Center for Disability Services provides a full range of support services. The Ross Center is located in the Campus Center, 2nd floor; Tel: (617) 287-7430

Academic Honesty

- As with all courses in the College of Management, this course is governed by the UMass regulations and procedures regarding Academic Standards, Cheating, Plagiarism, and the Documentation of Written Work as published in the Undergraduate Catalog. Students caught cheating or plagiarizing will fail the course, and a description of the incident may be attached to his or her academic record.
- Collaboration is encouraged and good; cheating deprives you of something valuable and cheapens your education. Examples of collaboration are: sharing knowledge and discussing concepts and ideas and checking answers. Examples of cheating include copying work by any means (electronic included,) even if the second person claims it's just "to go by." Identical work will receive an identical grade: F.

VIII Suggested Reading

1. Implementing health information technology to improve the process of health care delivery: a case study. <http://www.ncbi.nlm.nih.gov/pubmed/17718659>
2. Health Information Technology: Benefits and Problems
<http://www.ncpa.org/pdfs/st327.pdf>
3. HEALTH IT AND HEALTH DISPARITIES: Georgia Health Information Technology Regional Extension Center – helping eligible providers reach Meaningful Use- a case study.
4. The use of health care technology to improve medication safety
<http://www.patientsafetyresearch.org/journal%20articles/Original%20260.pdf>
5. Big Data and Analytics in Healthcare
<https://healthmanagement.org/c/healthmanagement/issuearticle/big-data-and-analytics-in-healthcare>
6. Primary Care Leader Benefits From AHRQ-Seeded Health Information Exchange
<https://www.ahrq.gov/news/newsroom/case-studies/cp31304.html>
7. Wang, S. J., Middleton, B., Prosser, L. A., Bardon, C. G., Spurr, C. D., Carchidi, P. J., ... & Bates, D. W. (2003). A cost-benefit analysis of electronic medical records in primary care. *The American journal of medicine*, 114(5), 397-4
8. Häyrynen, K., Saranto, K., & Nykänen, P. (2008). Definition, structure, content, use, and impacts of electronic health records: a review of the research literature. *International journal of medical informatics*, 77(5), 291-304.
9. Ludwick, D. A., & Doucette, J. (2009). Adopting electronic medical records in primary care: lessons learned from health information systems implementation experience in seven countries. *International journal of medical informatics*, 78(1), 22-31.
10. Or, C. K., & Karsh, B. T. (2009). A systematic review of patient acceptance of consumer health information technology. *Journal of the American Medical Informatics Association*, 16(4), 550-560.
11. Poon, E. G., Keohane, C. A., Yoon, C. S., Ditmore, M., Bane, A., Levtzion-Korach, O., ... & Gandhi, T. K. (2010). Effect of bar-code technology on the safety of medication administration. *New England Journal of Medicine*, 362(18), 1698-1707.
12. O'Malley, A. S. (2011). Tapping the unmet potential of health information technology. *New England Journal of Medicine*, 364(12), 1090-1091.
13. Puri, C. A., Gomadam, K., Jain, P., Yeh, P. Z., & Verma, K. (2011, July). Multiple Ontologies in Healthcare Information Technology: Motivations and Recommendation for Ontology Mapping and Alignment. In *ICBO*.
14. Parente, S.T. & McCullough, J.S. (2009). Health Information Technology And Patient Safety: Evidence From Panel Data. *Health Affairs*, 28(2), 357-360.
15. Walker, J. M., & Carayon, P. (2009). From tasks to processes: the case for changing health information technology to improve health care. *Health Affairs*, 28(2), 467-477.
16. Karsh, B. T., Weinger, M. B., Abbott, P. A., & Wears, R. L. (2010). Health information technology: fallacies and sober realities. *Journal of the American Medical Informatics Association*, 17(6), 617-623.
17. Kern, L. M., Ancker, J. S., Abramson, E., Patel, V., Dhopeswarkar, R. V., & Kaushal, R. (2011). Evaluating health information technology in community-based settings: lessons learned. *Journal of the American Medical Informatics Association*, 18(6), 749-753.
18. Karsh, B. T., Weinger, M. B., Abbott, P. A., & Wears, R. L. (2010). Health information technology: fallacies and sober realities. *Journal of the American Medical Informatics Association*, 17(6), 617-623.