

## Introduction to Information Technology in Healthcare

### Course Syllabus and Schedule

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### Course WEB Site:

This course uses a Blackboard WEB site. Assignments, readings, correspondence, etc will be posted here. Be sure to check this site regularly for updates.

URL to Course: <http://www.cmu.edu/blackboard>

### Description:

In the current healthcare climate, quality of care and patient safety issues are generating considerable debate, chronic disease is on the increase, and healthcare costs have reached 16% of the GDP. Successive Institute of Medicine (IOM) reports have been pushing for wide adoption of Information Technology (IT)-enabled solutions to improve cost efficiency without risking quality of care. With pay-for-performance and consumer/business driven healthcare initiatives driving IT implementations across healthcare enterprises, such as the EMR and CPOE, IT has emerged as a powerful force in helping to achieve multiple goals within health care organizations.

This course seeks to facilitate a better understanding of these IT initiatives by providing an introduction to basic information technology concepts and terminology, and demonstrating their application in the healthcare delivery and management arena. The course draws on an E-learning component on IT concepts, course slides, demo tools, Harvard Business School cases, and website resources to integrate technology concepts with domain knowledge. These knowledge sources are being used currently by healthcare enterprises to improve quality of care, enhance patient safety, and re-engineer business and care processes to increase productivity and efficiency of the healthcare system from the perspective of multiple stakeholders.

## **Course Schedule:**

### **Week 1: March 17 – March 24**

**Objective:** Understand hardware and software choices and their integration issues in the context of clinical applications.

**Lecture 1:** Course Overview & Introduction to Information Technology in Healthcare

**E-Learning:** IT Concepts – Hardware and Software modules

*Assignment:* Hardware and Software Quizzes to be completed by Wednesday, March 21.

*Analysis Paper:* A SWOT analysis of open source software options (Linux vs. Windows) in the healthcare context, due on Saturday, March 24.

### **Week 2: March 24 – March 31**

**Objective:** Understand the role of networks and the internet as infrastructure, its industry structure, and associated innovative service offerings. Analyze the impact of failure of networks and the importance of disaster planning.

**Lecture 2:** Communication Technologies and Applications (Guest Speaker)

**E-Learning:** IT Concepts – Networks and Internet

*Assignment:* IT Concepts - Networks and Internet Quizzes to be completed by Wednesday, March 28.

**Case Analysis:** CareGroup

*Assignment:* HBS case analysis due by Saturday, March 31.

### **Week 3: March 31 – April 7**

**Objective:** Understand the basics of data management and decision support in the healthcare context, with a brief introduction to Microsoft Access. Discuss the value of enterprise architecture and its role in designing and using IT-enabled solutions for the enterprise.

**Lecture 3:** Healthcare Decision Support

**E-Learning:** IT Concepts – Enterprise Architecture

*Assignment:* Enterprise Architecture Quiz to be completed by Wednesday, April 4.

**Case Analysis:** Intermountain Healthcare

*Assignment:* HBS case analysis due by Saturday, April 7.

## **Week 4: April 7 – April 14**

**Objective:** Understand critical issues that surround software deployments, such as EMR, as a service. Evaluate role and value of IT for business, clinical and operational decision making.

**Lecture 4:** IT Deployments and Valuation

**E-Learning:** IT Concepts – Implementation and Value of IT

**Assignment:** Implementation and Value of IT Quizzes due by Wednesday, April 11.

**Final paper:** Application of course concepts in a problem from your own environment due by Saturday, April 14.

### **Operational Details**

1. Access to the HBS E-Learning component has been set up through the course web site. You would each setup a user-name and password for yourselves. The course will be accessible through late September (6 months).

2. Access to HBS Cases will be announced shortly.

3. Access to CRS (Clinical Reminder System) has also been set up through the Blackboard site. Three usernames and passwords have been created for each of you. They are in the following format:

Your “Attending” account username is your Andrew username1 (e.g. username1), and your password is “1” (without the quotes).

Your “Staff” account username is your Andrew username2 (e.g. username2), and your password is “1” (without the quotes).

Your “Resident” account username is your Andrew username3 (e.g. username3), and your password is “1” (without the quotes).

4. Assignments will be posted in the Assignments Section on Blackboard; Course Slides in the Course Documents Section; Readings in the Articles Folder in the Course Documents Section; and website resources in the External Links Section.

5. Assignment submissions: Please submit assignments and case analyses in the Digital Dropbox on Course Blackboard.

6. Use the following naming convention for all submissions:  
‘LastnameFirstInitial.Case1/2/3’ for case analyses,  
‘LastnameFirstInitial.HW1/2/3’ for assignments, and  
‘LastnameFirstInitial.Final’ for the final paper.

For example, my first case submission would be padmanr.case1.

7. Final paper: 5 page description of a problem from your own clinical environment and its IT-enabled solution.

What is the problem? Why is it a problem? What is the underlying business process? What is a reasonable IT-enabled solution for this problem? What is the associated enterprise architecture? What data, information, knowledge, and resources are needed to implement the solution? What are the challenges – operational and organizational – in deploying this solution? What is the value of this IT-enabled solution for the proposed problem?

The document should be in Word, 12pt font, and justified on both sides.

8. Discussion threads have been set up by week for assignment, case, and lecture content. We'll wrap up the discussions of each week by the following Saturday.