MET CS-581

Electronic Health Records

Syllabus

Location:
808 Commonwealth Ave
Room: PC Lab 264

Day and Time: Monday 6:00 – 9:30 pm

Michael Levinger (mlevinger@bu.edu)

Computer Science Department
Metropolitan College
Boston University
1. **Course Overview**

Electronic Health Records (EHRs) are application systems that automate the activities of healthcare clinicians including physicians, nurses, physician assistants, and healthcare administrative staff. Use of EHRs is increasing rapidly due to the systems’ benefits and federal government programs to deploy EHRs. This increased use of EHRs has many challenges including complex data, high security requirements, integration to multiple application systems, a distributed user base, and broad impact on how these users work. This course will focus on real-world use and deployment of EHRs through readings, hands-on labs and case studies. Students will: (1) Learn the functionality of EHRs through hands-on labs; (2) Learn the technical infrastructure required for EHRs including distributed architecture, network and security design; (3) Understand how EHRs change healthcare delivery workflows and how to manage that change; and (4) Learn best-practices for deploying EHRs including project management, typical budgets, system selection and governmental requirements and funding.

2. **Basic Information**

   2.1. Classroom: 808 Commonwealth Ave PC Lab 264
   2.2. Day and Times: Monday, 6 PM to 9:30 PM
   2.3. Instructor

   Michael Levinger is an adjunct faculty member of Boston University’s MET College. He created CS581 and has been teaching the course for the past several years. Michael is an information technology and healthcare senior executive and multi-time entrepreneur specializing in the successful creation, deployment and use of mission-critical software including Electronic Health Records and Health Information Technology. Michael is the founder, President and CEO of The HIT Community, a provider of online communication, information and collaboration communities and services for healthcare. Mike is a member of the Massachusetts eHealth Institute Ad Hoc workgroup on Health IT Workforce Development. Previously, Mike was President and CEO of a Massachusetts-based Electronic Health Record consulting and systems integration company. Under Mike’s leadership, the company helped numerous physician practices and healthcare delivery organizations implement EHR deployment programs.

3. **Course Goals**

   - Introduce students to what is an EHR and their use and deployment
   - Introduce students to the applied, “real-world” deployment of enterprise application systems in general
• Encourage independent, analytical thinking about the challenges of deploying EHRs and how to address them
• Provide tools and processes to use in an EHR or other application system deployment program
• Students will
  o Learn the functionality of EHRs through hands-on labs
  o Learn the technical infrastructure required for EHRs including distributed architecture, network and security design
  o Understand how EHRs change healthcare delivery workflows and how to manage that change
  o Learn best-practices for deploying EHRs including project management, typical budgets, system selection and governmental requirements and funding
  o Collect a set of tools to use in EHR and other enterprise system deployment programs
  o Present results of their work in a “real-world” fashion including class presentations and written assignments

In pursuing these objectives, the course will:

• Use textbooks, current news items, government reports and publications lectures, and cases
• Use projects that apply the class material to case examples including presentation of results
• Require in-class team projects as well as assignments

3. What is expected of students?

• Participate
• Think
• Create solutions
• Reading
  o Textbook Chapters
  o Current articles from healthcare and healthcare IT Literature
• Homework projects - critical elements of EHR system deployment
• Class Exercises
• Class Discussion
• Occasional Quizzes
• Final Exam
4. **Text & Materials**

4.1. Required Text

By: Jerome Carter
Publisher: American College of Physicians ACP Press
Copyright 2008

4.2. Online Materials

The course makes extensive use of online reading materials and URLs will be provided for those readings. Students need access to the internet to access materials.

4.3. Personal Computer Tools

Assignments will need to be completed using Microsoft Word, Excel and PowerPoint. Alternatives such as OpenOffice are acceptable, but the student bears the responsibility for completing the work.
5. **Class Schedule**

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21-May-12</td>
<td>Course Introduction. Overview of Health Info Technology and EHRs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow analysis and Business Process Re-engineering</td>
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<tr>
<td>2</td>
<td>28-May-12</td>
<td>No Class – Memorial Day</td>
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<tr>
<td>2</td>
<td>4-June-12</td>
<td>Clinical Use of EHRs</td>
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<td></td>
<td></td>
<td>Government Requirements for EHR Use (“Meaningful Use”)</td>
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<tr>
<td>3</td>
<td>11-June-12</td>
<td>EHR Functionality including Online Use of an EHR</td>
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<tr>
<td></td>
<td></td>
<td>Government EHR Certification</td>
</tr>
<tr>
<td>4</td>
<td>18-June-12</td>
<td>EHR Technical Infrastructure</td>
</tr>
<tr>
<td>5</td>
<td>25-June-12</td>
<td>EHR Security</td>
</tr>
<tr>
<td>6</td>
<td>2-July-12</td>
<td>Interoperability &amp; Health Information Exchanges</td>
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<tr>
<td>7</td>
<td>9-July-12</td>
<td>EHR Deployment &amp; Project Management</td>
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<tr>
<td>8</td>
<td>16-July-12</td>
<td>EHR System Selection</td>
</tr>
<tr>
<td>9</td>
<td>23-July-12</td>
<td>Government programs for EHR deployment, Project Budgets</td>
</tr>
<tr>
<td>10</td>
<td>30-July-12</td>
<td>Patient Centered EHR - Portals and PHRs, Course Review</td>
</tr>
<tr>
<td>11</td>
<td>6-August-12</td>
<td>Final Exam</td>
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</table>

6. **Assignment & Test Grading**

- Points will be given for homework, quizzes and the final exam
  - Each topic for homework, quizzes and final exam questions will be scored as follows:
    - 0 – Did not understand assignment, show understanding of topics or did not complete
    - 1 – Did well, understood assignment and basic concepts
    - 2 – Did especially well, fully understands assignment and mastery of concepts, well presented
  - Points will be totaled and a total point “award” will be computed
- Homework
  - Each assignment will have a set of “learning topics” that we are looking for
  - Homework turned in on paper on time
  - 1 point reduction for each week that homework is late
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- One “pass” for no deduction for a one week delay

- Quiz questions and final exam
  - Each question will have a set of “learning topics”
  - Each question will get graded the same way as homework
  - If you are not at class for a quiz, must arrive early or stay late to make up quiz as soon as possible

- Final Exam
  - Each question will have a set of “learning topics”
  - Each question will get graded the same way as homework
  - Final exam questions will also have a weighting factor since some are longer and more in-depth than others

- Class exercises and discussion will be graded qualitatively
7. **Course Grading**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade</th>
<th>Score % of Points</th>
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</thead>
<tbody>
<tr>
<td>Homework</td>
<td>40%</td>
<td>A</td>
<td>93-100</td>
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<tr>
<td>Class exercises</td>
<td>10%</td>
<td>A-</td>
<td>90-92</td>
</tr>
<tr>
<td>Class discussion</td>
<td>10%</td>
<td>B+</td>
<td>87-89</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15%</td>
<td>B</td>
<td>83-86</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
<td>B-</td>
<td>80-82</td>
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<tr>
<td>Total</td>
<td>100%</td>
<td>C+</td>
<td>77-79</td>
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<td>C</td>
<td>73-76</td>
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<td>C-</td>
<td>70-72</td>
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<td>D+</td>
<td>67-69</td>
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<td>D</td>
<td>63-66</td>
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<tr>
<td></td>
<td></td>
<td>D-</td>
<td>60-62</td>
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<tr>
<td></td>
<td></td>
<td>F</td>
<td>&lt;60</td>
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While there is no fixed absolute number of grades in any one level it is important to note that high grades reflect an excellence in the understanding of class material and organization of thought. In addition, an important aspect of any class is the shared thoughts and insights of the class members. Grades will also reflect an individual’s contributions to the class.

8. **Communication**

- **Methods**
  - Email
  - BU Blackboard system
- **Mike Levinger**
  - mlevinger@bu.edu
  - mlevinger@thehitcommunity.org
  - Cell Number: 781-307-7898
  - Skype: mlevinger
- **Snow/Weather Cancellation** – BU Snow Cancellation Phone Number: 617-353-SNOW
9. **Requirements, Policies and Standards**

9.1. **Attendance**

Attendance at all classes is mandatory. Attendance will be taken early on in the class. In accordance with the department policy, any student missing more than 2 classes will be considered to have withdrawn. Students arriving late will be considered to have missed the class.

9.2. **Homework**

Homework will be assigned each week and assignments will be graded as indicated.

9.3. **Timely Presentation of Materials Due & Requests for Extensions**

All assignments (papers, homework, etc.) have due dates and all assignments must be completed.

The general position is that extensions or make-up tests are not given. If, for any reason, you are unable to meet any assignment deadline, a student should contact the instructor immediately and preferably in advance. Homework grades will be reduced for late materials as indicated under Grading. Recognizing that most CS581 students have full-time professional roles and that unforeseen situations occur, each student will be allowed one “pass” per term for a one week delay in submitting homework without a grade reduction.

Student should organize their time and work so as to turn in assignments by the due date.

This policy is not to penalize any individual student. The course materials builds from week to week so keeping current is important to successfully learning the material. In addition this policy is an attempt to assure that there is a level playing field and the total class feels confident that no one has a unique advantage.

9.4. **Discussion Expectations**

Each student should be prepared to discuss the assigned topic in class.

9.5. **Student Preparation & Class Participation**

**Minimal preparation** is reading the material, and being able to summarize what it is about, what the major issues are, and some recommendations.
Superior preparation involves being able to (i) summarize the situation or problem presented by the material; (ii) recommend solutions; (iii) support your recommendation with data, relevant details, and analyses; and (iv) discuss innovative solutions, or why obvious solutions might be discounted.

9.6. Off-Syllabus Work

The course topic is part of a very dynamic industry. As such, there is much material that is not covered in the class. Students are encouraged to read and consider related material and issues that are beyond those defined in the syllabus to include in their work and in class discussions.

10. Academic Conduct Policy

All students are expected to maintain high standards of academic honesty and integrity. The class will follow the Boston University Academic Conduct Code. It is the responsibility of every student to be aware of the Academic Conduct Code’s contents and to abide by its provisions. The Academic Conduct Committee of Metropolitan College, which is composed of faculty and staff, has jurisdiction over all charges of academic misconduct brought against students.

The academic conduct policy is available at:

http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html

Any infractions will be dealt with according to the Academic Conduct Code of Metropolitan College.