Electronic Health Records
Foundation of Clinical Informatics (INLS 890 - 154)

Dr. Javed Mostafa
Tuesday & Thursday, 11:00-12:15PM
117 Manning Hall
School of Information and Library Science
University of North Carolina at Chapel Hill

Course Description
Electronic Health Record (EHR) systems are the backbone of modern clinical data management systems. In this class we will focus on EHR data standards with a strong emphasis on associated data management requirements, applications, and services. Along with a close examination of the standards criteria being developed by the Certification Commission of Health Information Technology (CCHIT), the course will also cover the Health Level 7 (HL7) and Clinical Data Interchange and Standards Consortium (CDISC) standards. The course is aimed at data management specialists, data management administrators, and students interested in health data analytics.

Objectives include learning about the following areas and engaging in related activities:
* Standards that ensure EHR systems are both secure and inter-operable with other systems
* Data management, architecture and information exchange platforms
* Informatics principles that support quality of care and evidence-based practice
* Data governance and regulations associated with securing health data
* EHR future and evolution: How the development of next generation technologies are being shaped by the Federal Government through financial incentives/penalties (meaningful use)
* Practical experience with EHR tools and applications

Course Requirements
* Project (Group Effort)
  - 5% Topic Selection and Overview Presentation
  - 5% Abstract and Outline
  - 10% Draft Submission and Formative Evaluation Feedback
  - 25% Final Project Report
* 15% Field Report
* 25% Take-home final exam
* 15% Class participation: Activities in class, regular attendance, and contributions to class list

Grading
Based on current UNC grading scales, the following grades and corresponding numeric ranges are applicable:

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<tr>
<th>Grad Grade</th>
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<tr>
<td>H</td>
<td>95-100</td>
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<td>P</td>
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<td>L</td>
<td>70-79</td>
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<td>F</td>
<td>69 or below</td>
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Required Text-books
Electronic Health Records: A Guide for Clinicians and Administrators (EHR-1)
The previous edition of the book is adequate to fulfill most of the requirements of this course.

**Additional Useful Book**
Electronic Health Records (EHR-2)
Additional readings will be assigned and shared as needed.

**Course Outline & Calendar**
Class 1 - Jan 10
Introduction to the class and distribution of the syllabus. Important dates, exam, and assignments described.
Class project requirements discussed.

Class 2 - Jan 12
Overview of EHR; platform, standards, applications, and evolution
Readings: Chapter 1 (EHR-1)

Class 3 - Jan 17
EHR as a gateway and integration hub. Applications contd.
Readings: Chapter 1 (EHR-1) and Chapter 1 (EHR-2)

Class 4 - Jan 19
EHR in action from the perspectives of patients, clinicians, and public health.
Readings: Staggers et al., 2001 (History of EHR); Teich, 1998 (Issues related to Integrated Health Networks); Payne et al., 2010 (Current Case Study); Fernandopulle & Patel, 2010 (Current Case Study)

Class 5 - Jan 24
Health data architectures, standards, and protocols I.
Readings: Chapters 6 (EHR-1) and Chapter 2 (EHR-2)

Class 6 - Jan 26
Health data architectures, standards, and protocols II.

Class 7 - Jan 31
Health vocabularies, taxonomies, and ontologies I.

Class 8 - Feb 2
Health vocabularies, taxonomies, and ontologies II.
Readings: To be assigned.

Class 9 - Feb 7
Data management, architecture and information exchange platforms.
Readings: Chapter 4 (EHR-1)
Class 10 - Feb 9
Due: Project System Selection and Overview Presentations
For assistance with project scope and system selection please see the page here.

Class 11 - Feb 14
Data modelling in basic and data warehousing contexts.

Class 12 - Feb 16
Data analytics, visualization, and challenges.
Readings: To be assigned.
User interfaces and evaluation.
Readings: To be assigned.

Class 13 - Feb 21
Clinical workflows and clinical processes.
Readings: Chapter 8 (EHR-1) and Chapter 5 and 6 (EHR-2)

Class 14 - Feb 23
Usability Testing Methodology

Class 15 - Feb 28
Evidence-based care and quality improvement I.

Class 16 - March 1
Evidence-based care and quality improvement II
Readings: Chapter 10 (EHR-1); Zhou L. et al. (2009).

Class 17 - March 13
Evidence-based care and quality improvement III

Class 18 - March 15
Evidence-based care and quality improvement IV

Class 19 - March 20
Clinical decision support

Class 20 - March 22
Clinical decision support II. Usability of CDS systems.

Class 21 - March 27
Implementing EHR and evaluating systems. Data Governance.

Class 22 - March 29
EHR regulations, privacy, and security I.
Reading: Chapters 12 and 13 (EHR-1).
Class 23 - April 3
EHR regulations, privacy, and security II.
Readings: To be assigned.
Take Home Exam Review

Class 24 - April 5
Advanced topics: Consumer-centric EHR and PHR applications.
Reading: To be assigned.
Take Home Exam Distributed; completed exam due by April 10th

Class 25 - April 10
Advanced topics: Health information exchange.

Class 26 - April 12
Field Trip: Carlton Moore, MD; report due by April 24th.

Class 27 - April 17
Class presentations.

Class 28 - April 19
Class presentations. Wrap-up.

Final Project Report due by April 30th

Contact Information
Instructor Office hours: Wednesday 10A-11A. The instructor will be in Room 300A, Manning Hall.
TA Office hours: Thursday 1P-2P. The TA will be in Room 300, Manning Hall.
Please do not hesitate to contact the instructor or the TA to schedule other meeting times.
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Fax: (919) 962-8071
Email: jm@unc.edu (instructor) and xyfan@email.unc.edu (TA)