Spring 3-23-2020

# CPT 325-102: Medical Informatics Technology (Revised for Remote Learning)

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Syllabus CPT 325 Spring 2020 (updated)

# CPT 325 Medical Informatics I

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**Definition:** Informatics creates meaning out of chaos: Biomedical Informatics extrapolates meaning from diverse biological, medical, nursing, health and clinical research sources and structures that data via intuitive interfaces to enhance healthcare and delivery.

## Grades:

Homework
- Chapter, biweekly, review Questions 50%
- Project 15%

Exams 35%

Exams (modified for njit campus closures)

- Four versions of exams emailed to students randomly to ensure no class collaboration
- Strict time 2hr limits to return answers.
- Answers must exclude any screen shots or automated online tools, diagrams of anatomy and physiology including coronary systems have to be handwritten and scanned or pictures via phone returned.
- During exam a WebEx session will be on.

**Modifications to in class lectures:**
Additional videos and PowerPoints have been added to canvas using Kaltura to cover weekly topics and exam review videos replace the final exam review.
(students receive weekly emails about class material, and require acknowledgement to take attendance)

*General Courses Topics:*

1. HIPAA
2. Meaningful Use
3. Type of Medical Records
4. Medical Vocabularies
5. HL7
6. Interoperability and HIE's
7. UMLs
8. Security and HIPAA Title II

Book Chapters: Corresponding to Lectures

1. Introduction to Medical Informatics
2. *"Framework for Implementing the U.S. Medical Records Infrastructure"* provides a historical perspective of the evolution of EHR's form HIPAA to the Affordable Care Act.
3. *Electronic Health Records* frames the core components contained in Electronic Heath Record Systems , specific examples of EHR's are included.
4. *"Interoperability"*, describes in detail all the communications and vocabularies created to ensure data operability between systems and ensure consistency between medical
5. documentation. Specific messages formats and software used to create equivalencies like UMLS are introduced.
6. *Security* describes the HIPAA Title II mandates for Privacy and Security and provides a basic security primer
7. "TeleHealth" describes all the technologies current and evolving to offer medicine remotely.
8. "Medical Sensors" provides core science knowledge form chemistry, biology and circuit theory needed to develop an in depth understanding of the field. It includes electrical foundations needed for capturing and analyzing medical sensor data. It also provides an optional, level IV, Anatomy and Physiology primer for those students who haven't taken A&P I and II.

**Homework**

**Week 1:**

Question 1:

How Many Electronic Health Record Vendors are there? (EHR) provide link for source

Question 2:

What are the five most popular EHR's for hospitals and Doctors practices (they are different) give percentages

Question 3:

Your opinion, I will ask this again at end of course, how will medicine and healthcare change when all medical data online and interconnected?

**Week 2:**

Questions

Chapter 2

1. What is HIPAA and what in general was it supposed to accomplishh
2. What are the five components/Titles of HIPAA and briefly summarize their objectives. (some information is in the Level II sections of this chapter

3. Explain the function of Meaningful Use (MU) standards. Why was it created?

Chapter 3

1. What are the different types of Electronic Health Records (EHR)?

3) When entering EHR data what standard nomenclatures are used to ensure all parties understand the clear meaning of the information entered

**Week 3:**

Questions

chapter 3

6. Explain what is the role of Meaningful Use (MU) criteria in EHR implementation

1. Explain the general (MU) features of Stage 1,2 &3
2. What are the top three deliverable features (MU) of stage II
3. Explain your reasoning

7) What is the purpose of Health Information Exchanges (HIE's)?

Name the three types of HIE's

Chapter 4

1. What is Data Interoperability explain whats its purpose

a. What are the three general categories and explain each.

b. List a few key standards in each of those three interoperability categories

2. What is main functionality of HL7 and explains its purpose

a: What standards are specified (categories) briefly explain each.

b: Explain some of the details from the HL7 communications message fig. 4.2

c: Explain the relationship to the relationship to the OSI model and HL7

What is HL7 RIM, explain its purpose

**HW 4:**

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Chapter 4

3. What is the ISO?

a: Explain ISO TC 215

4. Describe the need for IEEE 11073 Health Device Communications Standards

1. Select one of the IEEE 11073 standards links from table 4.4 and explain some details of specific communications standards.

6. What role does Medical Classifications systems play in interoperability?

Briefly explain the following

1. SNOMED (CT)
2. SNODENT
3. ICD10-11
4. LOINC
5. RxNorm

7. What is the *Unified Medical Language System (UMLS)*

a. Explain the three knowledge basses incorporated in UMLS