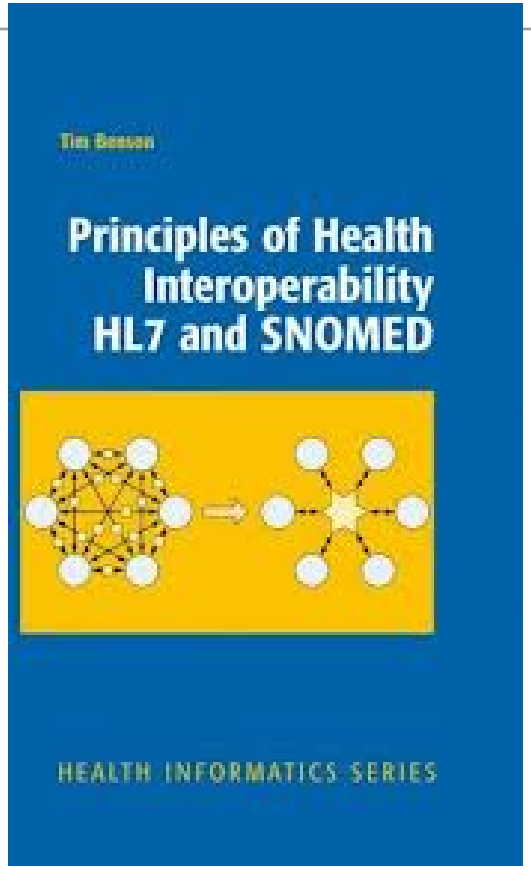
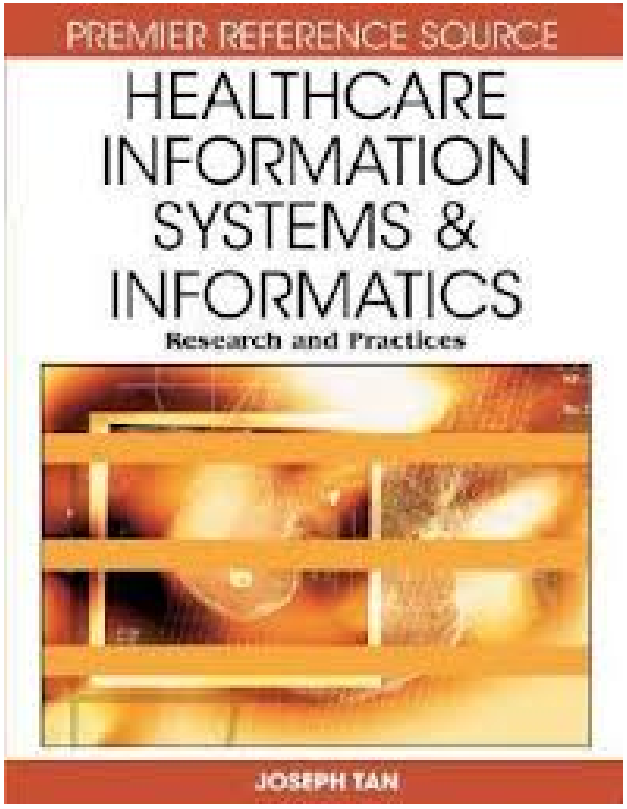
BYM 516 E
Basics of Biomedical Informatics

Dr. Serkan Türkeli

Scope, Purpose and Description	This course is designed to provide the student an overview of the medical informatics and how it relates to healthcare operations. This course introduces students to the procedures, tools, and techniques used in planning and managing medical informatics projects. Students will learn computer-based tools in health care, human computer interfaces, an introduction to computer applications in medicine, electronic health record, database, knowledge-based systems, medical decision and analysis, introduction to health information systems: communication and networks, telemedicine and Internet applications, advance topics in biomedical informatics.

Required Readings	Tim Benson, Principles of Health Interoperability: HL7 and SNOMED, Springer 2009 978-1-84882-802-5. Joseph Tan, Healthcare Information Systems and Informatics: Research and Practices





Grading Criteria	Students will be evaluated using the following criteria: **<u>Active, Meaningful</u> Participation 25%** Midterm Project Written Deliverable and Presentation 35% **Final Project** Written Deliverable and Presentation 40%

Course Schedule	
Week 1:	**Introduction and Overview** Course Introduction Student Introduction **What is Medical Informatics?**
Week 2:	**Data, Information, Knowledge, Wisdom Hierarchy**
Week 3:	**Electronic Medical (Health) Records**
Week 4:	**Hospital information systems**
Week 5:	**Interoperability (HL7, Medical Terminology…)**
Week 6:	**Clinical support systems**
Week 7:	*Midterm1*

Week 8:	**Modeling of HIS (health information system)**
Week 9:	**Standards in medical informatics**
Week 10:	**Medical Decision Support Systems** **What makes an organization intelligent?**
Week 11:	**Telemedicine**
Week 12:	**Privacy and security in healthcare**
Week 13:	**Final Projects Presentation**
Week 14:	**Final**

Objectives and Goal

At the end of this course, students will be able to

- Define medical informatics
- Define information management, information technology and informatics
- Define concepts of medical informatics
- Selecting best techniques to manage a medical informatics project.

Resources 1: Online resources

1. AHRQ National Resource Center for Health IT

http://healthit.ahrq.gov/

2. National Coordinator for Health Information Technology

http://healthit.hhs.gov/

3. Health IT Stimulus News

http://www.ihealthbeat.org/

4. OpenClinical

http://www.openclinical.org/

5. CPOE.org

http://www.cpoe.org/

6. Certification Commission for Health Information Technology (CCHIT)

http://www.cchit.org/

Resources 2: Major professional organizations

1. American Medical Informatics Association (AMIA)

http://www.amia.org/

2. Health Information and Management System Society (HIMSS)

http://www.himss.org/

3. International Medical Informatics Association (IMIA)

http://www.imia.org/

4. Certi
cation Commission for Healthcare Information Technology (CCHIT)

http://www.cchit.org/

5. Health Level 7 (HL7)

http://www.hl7.org/

Resources 3: Academic journals

1. Journal of the American Medical Informatics Association (JAMIA)
http://www.jamia.org/
2. Journal of Medical Internet Research (JMIR)
http://www.jmir.org/
3. Journal of Biomedical Science (JBS)
http://www.springerlink.com/content/112912/
4. International Journal of Medical Informatics (IJMI)
http://www.intl.elsevierhealth.com/journals/ijmi/
5. Methods of Information in Medicine (MIM)
https://www.schattauer.de/index.php?id=704

First assignment

Bernstam, E. V., Smith, J. W., & Johnson, T. R. (2010). What is Biomedical Informatics? Journal of Biomedical Informatics, 43(1), 104-110.

Write a two-pages paper about « the future of medical informatics».

Articles 1

- Haux R. Medical informatics: past, present, future. Int J Med Inform. 2010; 79(9): 599-610
- Hersh, W. (2009). A Stimulus to Define Informatics and Health Information Technology. BMC Medical Informatics and Decision Making, 9, 24.
- Himmelstein DU, Wright A, Woolhandler S. Hospital Computing and the Costs and Quality of Care: A National Study. Am J Med 2009; 123(1):40-46
- Shcherbatykh I, Holbrook A, Thabane L et al. Methodologic Issues In Health Informatics Trials: The Complexities of Complex Interventions. JAMIA 2008; 15:575-580
- J. Walker, P. Carayon, N. Leveson, R. Paulus, J. Tooker, H. Chin, A. Bothe, and W. Stewart, “EHR Safety: The Way Forward to Safe and Effective Systems,” Journal of the American Medical Informatics Association 15 (2008): 272-277.

Articles 2

- Fernandopulle, R. and N. Patel (2010). "How The Electronic Health Record Did Not Measure Up To The Demands Of Our Medical Home Practice." Health Affairs 29(4): 622-628.
- O'Malley, A., J. Grossman, et al. (2009). "Are Electronic Medical Records Helpful for Care Coordination? Experiences of Physician Practices." Journal of General Internal Medicine 25(3): 177-185.
- Bates, D. W. and A. Bitton (2010). "The Future Of Health Information Technology In The Patient-Centered Medical Home." Health Affairs 29(4): 614-621.
- Bates, D. W. & Gawande, A. A.(2003). Patient Safety: Improving Safety with Information Technology. The New England Journal of Medicine, 348, 2526-2534
- Gans, D., Kralewski, J., Hammons, T., & Dowd, B. (2005). Medical Groups' Adoption of Electronic Health Records And Information Systems. Health Affairs, 24(5) 1323-1333.

Contact

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