

HS315E – ADVANCED HEALTH INFORMATICS

Course Outline – Lecture Schedule

Lectures to be held on:

Fridays from 9 to 11 a.m. in SH 2317

Lab sessions to be held on:

Wednesdays from 12 to 3 p.m. in SH 1325

Date	Topic	Readings	Web Sites
Health Informatics – Review			
Sept 5	<ul style="list-style-type: none"> • Introduction <ul style="list-style-type: none"> ◆ Goals/Objectives ◆ Outline ◆ Evaluation/Assignments 	HS315E-goals.rtf HS315E-otl.rtf HS315E-lab-otl.rtf	http://instruct.uwo.ca/health-sciences/315e/
	<ul style="list-style-type: none"> • Health Informatics – Review <ul style="list-style-type: none"> ◆ Definitions 	<i>Handbook of Medical Informatics</i> What is Medical Informatics? pp.XXXI-XXXIV <i>Health Care Informatics</i> Preface <i>Medical Informatics</i> Ch. 1 – The Computer Meets Medicine and Biology: Emergence of a Discipline	http://www.mihandbook.stanford.edu/handbook/home.htm HealthCare Informatics Online The Informatics Review HS315E-intro.ppt
Sept 12	The Intelligence Ladder - Review <ul style="list-style-type: none"> • Data to Wisdom Continuum • Data Collection, Uses, Users • Levels of Computer Complexity 	<i>Handbook of Medical Informatics</i> Ch. 1 – Introduction and Overview Ch. 2 – Information and Communication <i>Health Care Informatics</i> Ch. 1 – Major Theories Supporting Health Care Informatics (see pp. 10 – 15 and Fig 1-4 and Fig 1-5) <i>Medical Informatics</i> Ch. 2 – Medical Data: Their Acquisition, Storage and Use	Data_Uses.ppt Data_to_Wisdom.ppt
Processing and Management of Data			
Sept 19	Data and Information Processing	<i>Handbook of Medical Informatics</i> Ch. 3 – Data Processing Ch. 4 – Database Management Ch. 5 – Telecommunication, Networking and Integration <i>Health Care Informatics</i> Ch. 3 – Understanding Databases	Introduction to databases for Web developers - http://www.extropia.com/tutorials/sql/toc.html Data_Processing.ppt

		<i>Medical Informatics</i> Ch. 2 – Medical Data: Their Acquisition, Storage and Use	
Sept 26	Classification and Structuring of Patient Data	<i>Handbook of Medical Informatics</i> Ch. 6 – Coding and Classification Ch. 7 – The Patient Record Ch. 29 – Structuring the Computer-based Patient Record <i>Health Care Informatics</i> Ch. 10 – Electronic Health Records Ch. 17 – Technical Standards Used in Health Care Informatics Ch. 18 – Professional Health Care Informatics Standards <i>Medical Informatics</i> Ch. 6 – Standards in Medical Informatics	CIHI (See Standards section) – http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=home_e Health Level Seven – http://www.hl7.org Data_Standards.ppt
Oct 3	Biosignal Analysis	<i>Handbook of Medical Informatics</i> Ch. 8 – Biosignal Analysis Ch. 25 – Biosignal Processing Methods <i>Medical Informatics</i> Ch. 13 – Patient-Monitoring Systems	Examples of an ECG Analysis program - http://www.gemedicalsystems.com/cardiology/non_invasive/card_svcs/algor_12sl_info.html http://www.biopac.com/AppNotes/app148proecg/autoecgpro.htm Heart sounds - http://biopac.com/AppNotes/app173stetho/prosteth.htm Data_Signals.ppt
Oct 10	Imaging Processing and Analysis	<i>Handbook of Medical Informatics</i> Ch. 9 – Medical Imaging Ch. 10 – Image Processing and Analysis Ch. 26 – Advances in Image Processing <i>Medical Informatics</i> Ch. 14 – Imaging Systems	The Visible Human Project - http://www.nlm.nih.gov/research/visible/visible_human.html Imaging_Systems.ppt
Clinical Information Systems			
Oct 17	Clinical Departmental Systems	<i>Handbook of Medical Informatics</i> Ch. 11 – Primary Care Ch. 12 – Clinical Departmental Systems <i>Health Care Informatics</i> Ch. 7 – Applications for Health Care	Clinical_InfoSystems.ppt

		Information Systems <i>Medical Informatics</i> Ch. 12 – Patient Care Systems	
Oct 24	Clinical Support Systems	<i>Handbook of Medical Informatics</i> Ch. 13 – Clinical Support Systems <i>Health Care Informatics</i> Ch. 7 – Applications for Health Care Information Systems	Clinical_Support.ppt
Decision Support Systems			
Oct 31	Models and Systems	<i>Handbook of Medical Informatics</i> Ch. 15 – Methods for Decision Support Ch. 16 – Clinical Decision Support Systems <i>Health Care Informatics</i> Ch. 4 – Supporting Administrative Decision Making Ch. 5 – Supporting Clinical Decision Making <i>Medical Informatics</i> Ch. 3 – Medical Decision-Making: Probabilistic Medical Reasoning Ch. 16 – Clinical Decision-Support Systems	See Web site for links to articles for Assignment #2 DSS.ppt
Nov 7	Evidence-Based Practice	<i>Handbook of Medical Informatics</i> Ch. 17 – Strategies for Medical Knowledge Acquisition Ch. 18 – Predictive Tools for Clinical Decision Support <i>Health Care Informatics</i> Ch. 4 – Supporting Administrative Decision Making Ch. 5 – Supporting Clinical Decision Making <i>Medical Informatics</i> Ch. 15 – Information-Retrieval Systems Ch. 16 – Clinical Decision-Support Systems	Center for Health Evidence – User's Guides EBM Toolkit - http://www.med.ualberta.ca/ebm/ebm.htm DSSII_EBM.ppt
Ethical and Legal Issues			
Nov 14	Data Security, Privacy and Confidentiality	<i>Handbook of Medical Informatics</i> Ch. 33 - Security in Medical Information Systems <i>Health Care Informatics</i> Ch. 20 – Protection of Health Care Information <i>Medical Informatics</i>	Ethical_Legal.ppt

		Ch. 7 – Ethics and Health Informatics: Users, Standards, and Outcomes	
Nov 21	Data Security, Privacy and Confidentiality	<i>Handbook of Medical Informatics</i> Ch. 33 - Security in Medical Information Systems <i>Health Care Informatics</i> Ch. 20 – Protection of Health Care Information <i>Medical Informatics</i> Ch. 7 – Ethics and Health Informatics: Users, Standards, and Outcomes	Ethical_Legal.ppt
E-Health – The Future			
Nov 28	E-Health Trends and Technologies	<i>Health Care Informatics</i> Ch. 13 – eHealth Trends and Technologies: The Impact of the Internet on Health Care Providers and Patients Ch. 23 – Future Directions in Health Care Informatics <i>Medical Informatics</i> Ch. 1 – The Computer Meets Medicine and Biology: Emergence of a Discipline	E-Health.ppt
Christmas Break – Last Day of Classes is December 3, 2003			

Readings:

There is no required text for the course, but readings from three books (listed below) are given in the outline. A limited number of these texts are available in the Campus Book Store and copies have been put on reserve in the Taylor Library. Note: The text of the *Handbook of Medical Informatics* is available on its Web site.

Handbook of Medical Informatics

J.H. van Bemmel & M.A. Musen

Springer, 1997

ISBN 3-540-63351-0

A very authoritative text with emphasis on 'medical' informatics, i.e. clinical decision making, expert systems, etc. Has an accompanying web site.

<http://www.mihandbook.stanford.edu>

Health Care Informatics

An Interdisciplinary Approach

S. P Englehardt & R. Nelson

Mosby, 2002

ISBN 0-323-01423-2

A much more approachable text for those new to health informatics. Good overview of the field, clinical implications, etc. Major drawback – it's U.S. based and examples and discussions deal with the American health care system (an emphasis on managed care models, HMO's, U.S. legislation dealing with privacy, confidentiality, etc.).

Medical Informatics

Computer Applications in Health Care and Medicine

Second Edition

E. H. Shortliffe & L. E. Perreault, Eds.

Springer-Verlag, New York, 2001

ISBN 0-387-98472-0

Probably the most authoritative text on 'medical' informatics. This is the second edition, updated to include consideration and discussion of the Internet and recent computer and information technology advancements. Shortliffe is considered the 'father' of medical informatics in the US. He established the first department of medical informatics and training program at Stanford University in the 70's. He was recruited to Columbia University two years ago and now heads their informatics program. These two universities represent two of the best and most active centres for study and research in the field of health informatics. This book, similar to the Handbook of Medical Informatics, has a heavy emphasis on the medical and clinical applications of informatics (i.e. more physician-oriented).

ICD-10/CCI Classification Primer

Second Edition

Joy Fletcher

Douglas College Publishers

ISBN: 1-896019-15-3

An excellent manual that will guide you through the complexities of the ICD-10-CA/CCI codes, arranged according to major body systems. Lots of examples and self-quizzes that we will be using in class. Copies for purchase will be available through the Campus Book Store shortly before the start of winter term.

Canadian Coding Standards for ICD-10-CA and CCI

2003

Available in [.pdf format](#) for download from the CIHI web site. (<http://ecomm.cihi.ca/ec/product.asp?sku=ICD10CACCICG03PDF>)

A printed copy is also available in the Reference section of the Allyn & Betty Taylor library.

Web Sites:

On-line journals

HealthCare Informatics Online

<http://www.healthcare-informatics.com>

The Informatics Review

<http://www.informatics-review.com>

Canadian Organizations

CHIMA (Canadian Health Information Management Association formerly the CHRA - Canadian Health Record Association)

<http://www.chra.ca>

CIHI (Canadian Institute for Health Information)
http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=home_e

COACH (Canada's Health Informatics Association)
<http://www.coachorg.com>

OHIH (Office of Health and Information Highway)
http://www.hc-sc.gc.ca/ohih-bsi/menu_e.html

American Organizations

AHIMA (The American Health Information Management Association)
<http://www2.ahima.org/search/journal.html>

AMIA (American Medical Informatics Association)
<http://www.amia.org/index.html>

JAMIA (Journal of the American Medical Informatics Association)
<http://www.amia.org/search/query.htm>

International Organizations

IMIA (The International Medical Informatics Association)
<http://www.imia.org>