SYLLABUS

COURSE:	DENF 1991 Introduction to Dental Informatics
SEMESTER:	Fall
CREDIT HOUR:	0.5
REVISED:	2009
REPRINTED:	2009
COURSE DIRECTOR:	Muhammad F. Walji, Ph.D.

GOAL

This course offers an introduction to dental informatics and the technology environment of the Dental Branch, the information resources to which students have access, and the fundamental skills necessary to navigate within this environment.

Dental informatics is the study of how health related information is collected, stored, communicated and presented to enhance patient care and discovery. The course includes an emphasis on understanding the critical role of data and information in dentistry. The course also reviews the concepts of clinical decision-making, critical thinking skills, clinical effectiveness, evidence-based dentistry and the ability to retrieve and critically evaluate information resources.

Using a combination of lectures, demonstrations, and an online approach (Blackboard), students will complete the course readings, tutorials and exercises.

At the conclusion of this course, each student will have a broad understanding of dental informatics, information resources, and familiarity with clinical technologies available to the dental professional. Using the principles of evidence-based dentistry and the critical thinking processes introduced in the class, students will be able to analyze various information resources and evaluate them appropriately. The skills gained in this course should be applied by the student in basic science, behavioral science, and clinical courses throughout their tenure as students at the Dental Branch. Critical thinking, evidence based-dentistry, and dental informatics should provide the foundation for an active learning process in both dental school and as dental practitioners the future.

Note that some of the objectives for this course will be met during your First Year Orientation and its tour of the facilities and introduction to the Dental Branch Library and the LRC.

OBJECTIVES

I. OVERVIEW OF DENTAL INFORMATICS

1. Define the field of dental informatics.

2. Describe the history of informatics.

3. List the domains/subspecialties of informatics.

4. Explain the current and future grand challenges for informatics.

5. Review information resources available at the Dental Branch

6. List the software programs available on the computers in the LRC.

   6.1 Describe the policies concerning access and use of these machines.
   6.2 Describe the email and remote access services being offered.
   6.3 Sign the Information Resources Security Acknowledgement form.
   6.3 Locate information on the Dental Branch website.

II. INFORMATION MANAGEMENT IN DENTISTRY

1. Be aware of the difference between data, information, and knowledge.

2. Describe the role of information in dentistry.

3. Explain the functions, benefits, and limitations of information systems such as electronic health records.

4. Describe the importance of clinical data standards.

5. Respond to a clinical case involving ethics and information management.

III. DECISION MAKING IN DENTISTRY

1. Describe the nature of clinical decision making.

2. Define the types of cognitive heuristics.

3. Explain the link between decision making and medical errors and mistakes.

4. Define and describe uses of clinical decision support.

5. Respond to a clinical case involving ethics, decision making, and medical error.

IV. EVIDENCE-BASED DENTISTRY

1. Describe the concept of evidence-based dentistry (EBD), as defined by the American Dental Association and others.

2. Demonstrate conversion of an information need or problem into a clinical question which can be answered.

3. Demonstrate an efficient computer search of (dental) databases to find the best external evidence with which to answer the question.

4. Describe and define, in general terms, the levels or quality of evidence.

5. Describe how evidence can be applied to clinical practice or to health policy.

6. Respond to a clinical case involving ethics and evidence-based dentistry

V. INFORMATION SEARCH AND RETRIEVAL

1. Navigate the library's web site to find relevant resources.

2. List the tools and services offered by PubMed in order to effectively perform a literature search including those searches involving evidence-based dentistry.

3. Construct an efficient search strategy to answer a specific dental-related question.

4. Explain the use of Internet search engines and their effective use in evaluating web sites.

5. Be aware of alternative and/or more focused resources for literature searches.

   5.1 Evidence-based dentistry database via OVID
   5.2 Cochrane
   5.3 Other evidence based medicine resources

6. Demonstrate the ability to access cited materials in the library and citing materials, books, journals, web sites:

   6.1 Library catalog
   6.2 Electronic Resources Page
   6.3 Remote Access
   6.4 Interlibrary Loan
   6.5 Items physically located in the library (tour of the facility)

VI. CRITICAL THINKING AND INFORMATION RESOURCE EVALUATION

1. List examples of the journals that are important to basic and clinical dental research.

2. Identify the types of scientific articles and understand the purpose of each type.

3. Explain the significance of published scientific research articles to the practice of dentistry.

4. Describe the process of peer review and its importance to the published literature.

5. Prepare a citation in accepted format for a book, journal article, and internet resource.

6. Using a structured worksheet, critically appraise a resource (e.g., a journal article or a website) for its validity and usefulness, or clinical applicability.

VII. E-HEALTH AND CONSUMER INFORMATICS

1. Describe the concept of shared-decision making.

2. Describe how patients use the internet as a source of information about their oral health.

3. Describe how patients use the internet to communicate with their dental provides and other patients.

4. Identify emerging technologies that will enhance the patient-provider relationship.

5. Respond to a clinical case involving ethics and e-health.

VIII. INFORMATICS AND TECHNOLOGY IN A DENTAL PRACTICE

1. Identify role of informatics in a dental practice.

2. Describe information systems used in a modern dental practice.

3. Describe the process used to evaluate and select technology.

4. Define tele-dentistry and describe its importance.

5. Explain the role of practice-based research networks.

6. Respond to a clinical case involving ethics and selection of technology for a dental practice.

RESOURCES

1. Media Resources

   A. Printed media

      1. Handouts provided by individual instructors

      2. Web-based email and remote access account information

   B. Online media

      Course documents are available within the DENF 1991 Introduction to Dental Informatics course in Blackboard, available at https://bb.uth.tmc.edu/

I. Human Resources

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STUDY PLAN AND REQUIREMENTS

Students should attend all class sessions and review handouts and online resources. This is a "hands-on" course and all exercises are designed to illustrate practical information and technology applications important to you as dental students and beyond. Completion of assignments in a timely manner is important to gaining the necessary skills. Details for completing each assignment as well as a specific timetable for completing each assignment will be provided in class.

In addition to information presented in the lectures, additional course material will be available online at the Blackboard site. Individual instructors will explain the information they have included online. You are responsible for all material presented online as well as in lecture.

An Orientation to the TMC libraries, including the Dental Branch library will be presented during new student orientation. Library and LRC tours will also be available then.

DENF 1991 INTRODUCTION TO DENTAL INFORMATICS
2009 Fall Semester Schedule

Tuesdays, August 18 – October 13, with exceptions
Room 340 unless otherwise indicated

DATE/TIME			SESSION TOPICS	PRESENTER
Aug 18	Tue	11-11:50 am	Overview of Dental Informatics Information Management in Dentistry	Walji
Aug 25	Tue	11-11:50 am	Evidence-based Dentistry	Bebermeyer
Sep 1	Tue	11-11:50 am	Decision Making in Dentistry	Walji Valenza
Sep 8	Tue	11-11:50 am	Information Search and Retrieval	Peri
Sep 15	Tue	11-11:50 am	Critical Thinking and Information Resource Evaluation	Levine
Sep 22	Tue	11-11:50 am	Group 1 Information Search and Retrieval Hands-on (Sim Center)*	Peri, Walji, Levine, Bebermeyer, Valenza, Taylor
Sep 23	**Wed**	**11-11:50 am**	Group 2 Information Search and Retrieval Hands-on (Sim Center)*	Peri, Walji, Levine, Bebermeyer, Valenza, Taylor
Sep 29	Tue	11-11:50 am	Group 3 Information Search and Retrieval Hands-on (Sim Center)*	Peri, Walji, Levine, Bebermeyer, Valenza, Taylor
Sep 30	**Wed**	**1-1:50 pm**	Group 4 Information Search and Retrieval Hands-on (Sim Center)*	Peri, Walji, Levine, Bebermeyer, Valenza, Taylor
Oct 6	Tue	11-11:50 am	E-health and Consumer Informatics	Walji
Oct 13	Tue	11-11:50 am	Informatics and technology in a dental practice ***Course Evaluation***	Valenza Walji

*Note: One-fourth of the class attends each session held in the Simulation Center.

EVALUATION METHODS

Students will be evaluated on the basis of completion of the following assignments involving actual use of the information resources and tools examined. These assignments will be hands-on and practical.

1. Completion of online Technology Experience Survey
This assignment is due by 5:00 pm, August 25 2009. This is a survey of your familiarity with current computer technology. A link for the survey can be found in Blackboard and the survey can be completed within Blackboard.

2. Completion of open book quiz after each lecture 70%
Quiz will be posted to Blackboard after each lecture. Quiz will be due before the beginning of the next class. There will be 5 quizzes in total.

3. Clinical Case Recommendation 30%
Submission of a **'**recommendation' to a patient about a clinical case: An example of a clinical question may be: "Should Mr. Smith have his wisdom teeth extracted?"

a. Review a fictional patient history in the EPR
b. Search the literature and provide support for the recommendation
c. Provide a written report that outlines the state of the science and final recommendation for the clinical question
d. Details for this assignment will be posted on Blackboard.
e. The assignment should be submitted via Blackboard

The submission is due by 11:00 am, Tuesday, October 13, 2009.

4. Completion of an online Course Evaluation Form
This assignment is due by Tuesday, October 13, 2009.

Grading

70% Quizzes
30% Clinical Case Recommendation