

## **CHS 225 COURSE SYLLABUS COMPUTER APPLICATIONS IN HEALTHCARE**

**Instructor:** Hala Alhodaib.

**Office Hours:** Sunday, Tuesday (9:00am – 12:00pm), or by appointment; Please email.

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### **Time and Location**

The course meets Saturday and Monday from 8:00am to 12:00pm at Computer Lab.

### **COURSE DESCRIPTION**

CHS 225, Computer Applications in Health Care, is designed to provide the students with knowledge about advanced computer technology in the healthcare field. It will introduce the student to technological innovations in healthcare informatics as a discipline, clinical decision-support systems, medical expert systems, telemedicine, telepharmacy and Internet health applications. The course also introduces modern statistical analysis software such as SPSS, for analyzing health-related data. What that means is that my goal for you is to become power users of PC applications to help you overcome the information technology challenges within health organizations.

### **COURSE OBJECTIVES**

- To acquaint students with current trends in medical informatics as they apply to the healthcare field.
- To help students to grow in their awareness of the ways in which information technology is used in practical and work-related situations.
- To enable students to explore computer applications in health education, practice, administration and research.
- To enable students to perform online search in medical, pharmaceutical and other health literature through the World Wide Web (WWW).
- To familiarize students with some of medical applications of computers such as doctors' information systems, hospital and pharmacy records, monitoring, expert systems and clinical decision-support systems.

### **MATERIALS**

There is no textbook for this class. In most cases, lecture notes will be given to you. You may download the notes electronically before class; print them and make handwritten notes.

## Textbooks/Supplies

There are many sources of help with computer, both on the web and in bookstores:

- Abou-Auda HS. *Computer Applications for Health Professions* (Arabic text with detailed English terminology). 2004. ISBN: 966-10-921-6
- Manuals of listed software.
- Van Bommel JH, Musen MA (editors). *Handbook of Medical Informatics*. 1997 Heidelberg, Germany. Springer. [Portions of the Handbook are available online at: <http://www.mihandbook.stanford.edu/handbook/home.htm>].
- Arthur Griffith. *SPSS for Dummies*. 2007. ISBN: 978-0470113448
- Shortliffe EH, Fagan LM, Wiederhold G, Perrreault LE. *Medical Informatics: Computer Applications in Healthcare and Biomedicine*. 2000. Springer Verlag. ISBN: 978-0387984728
- Louise Marston. *Introductory Statistics for Health and Nursing Using SPSS*. 2010. ISBN: 978-1847874832

## GRADING

Grades are derived from the following components:

Assessment task	Week due	Proportion of Final Assessment
Attendance & participation	From 1 <sup>st</sup> to 15 <sup>th</sup> week	10 %
Practical Evaluation	From 2 <sup>nd</sup> to 15 <sup>th</sup> week	10 %
Midterm test	6 <sup>th</sup> week	20 %
Course works: ✓ SPSS Assignments (5%) ✓ Event Participation (5%) ✓ Brochure, etc... (10%)	From 5 <sup>th</sup> to 15 <sup>th</sup> week	20 %
Final exam	16 <sup>th</sup> week	40 %

## **EXAMINATIONS**

One midterm test and final. In addition, lab evaluation will be assigned most weeks; students should be prepared every week.

## **COURSE WORKS**

Three course works will be assigned throughout the semester and will be due the following class. These course works are meant to reinforce class instruction and ensure comprehension of subject matter.

Each student will be expected to choose one of the subjects that will be scheduled later and prepare:

1. Patient education materials (Brochures, Pamphlets, Poster, etc).
- OR**
2. Create a health information website

Each work submitted in hardcopy or electronically is assumed to be the student's own work and that no help was given or received beyond that explicitly permitted by the instructor. You may request assistance from other students in the class to understand concepts. However, your application of concepts and analysis should demonstrate original thought. Attribute any help you receive to the appropriate person(s).

Students should make a copy of the assignment before submitting the original to the instructor. All course works must be submitted to the instructor on the due date. There will be a deduction of 5% per day for late works.

## **Grading Policy**

Absences on the dates of scheduled tests will result in a lowered grade. Make-up Exams will only be given after **an excused absence**. They must be taken on or before the next class session after the missed exam. Exams taken late will be reduced by 10 percentage points for each day they are overdue. It is the student's responsibility to schedule the make up with the instructor. Failure to do so will result in no credit

## **Attendance Policy**

Class attendance is required for all lecture and lab classes. Absences will affect the course grade.

**TOPICS TO BE COVERED:** (as anticipated)

\*The topics may be revised at the instructor's discretion.

<b>List of topics</b>	<b>Week due</b>	<b>Contact hours</b>
Introduction to the Course.	1 <sup>st</sup>	2
Statistical Analysis, Data Mining and Questionnaires Analysis Using SPSS	2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> , 5 <sup>th</sup>	16
Midterm Test	6 <sup>th</sup>	2
Clinical Simulation	7 <sup>th</sup>	4
Expert Systems	8 <sup>th</sup>	4
Clinical Decision Support Systems	9 <sup>th</sup>	4
Health Information Retrieval and Digital Libraries	10 <sup>th</sup>	4
The Internet (advanced usage)	11 <sup>th</sup>	4
Simple Healthcare programs	12 <sup>th</sup>	4
Experimental technologies & Electronic patient record	13 <sup>th</sup>	4
Use Microsoft Office programs	14 <sup>th</sup> , 15 <sup>th</sup>	8
Final Exam	16 <sup>th</sup>	2

**Lectures (1, 2, 3, 4)**

**Statistical Package for the Social Sciences (SPSS)** - SPSS windows and files, Entering data and creating a data file, Computing descriptive statistics, Basic analysis, Questionnaire analysis.

**Lecture (5)**

**Clinical Simulation** - (demonstrations).

**Lecture (6)**

**Expert Systems** - Artificial Intelligence (AI) programs (theory only), Examples of such programs: MYCIN, ONCOCIN, etc, Medical Expert Systems (MES) (theory and demonstration only).

**Lecture(7)**

**Clinical Decision Support Systems** - CDSS examples, DXplain (demo).

**Lecture (8)**

**Health Information Retrieval and Digital Libraries** -Indexing and abstracting services, Factual databases, Information retrieval, Knowledge-based information, Evaluation.

<b>Lecture (9)</b>	<b>The Internet (advanced usage)</b> - E-mail, Mailing lists, Newsgroups, Health-related discussion forums, Telemedicine, E-health, Telepharmacy, Medical resources on the Internet, Health websites: PubMed & Medscape, Literature search strategies, Uses of computer applications within hospitals and the healthcare system.
<b>Lecture (10)</b>	<b>Simple Healthcare Programs</b> - Drug Interactions Software, Total Parenteral Nutrition (TPN), Inventory Control.
<b>Lecture (11)</b>	<b>Experimental Technologies &amp; Electronic Patient Record</b> - Virtual Reality Systems (demonstrations).
<b>Lectures (12,13)</b>	<b>Use Microsoft Office Programs</b> – Microsoft Publisher 2007

\* Students are required to join the course Learning Management System.