Course Syllabus

Stony Brook University
School of Health Technology and Management
Health Science Program
Spring 2014
HAN 466 – Applied Healthcare Informatics (3 credits)

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Office Hours: By appointment
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Course Description: The course provides an overview of the role of information systems in healthcare organizations. Emphasis is placed on understanding how evidence-based research is integrated into clinical decision-making and recognizing how information systems influence health outcomes. Students explore technical, organizational and cost-benefit issues related to healthcare information systems, including clinical decision-support, integrated networking and distributed computing technologies, telemedicine applications, and artificial intelligence solutions. Through a combination of classroom-based seminars, group case studies, and computer-laboratory exercises, students will develop and exercise analytical skills for appraising health information systems, as well as acquire practical experience using biomedical research databases, desktop application software, and electronic communications systems.

Goals:
1. To develop a basic understanding of the nature and function of healthcare information management and decision-support systems.
2. To demonstrate skills of critical appraisal and strategic analysis of both established and emerging technologies in healthcare information management.
3. To foster practical skills in the collection, management, and communication of information, as well as to master best-practices locating, evaluating and managing biomedical and healthcare information.

Behavioral objectives:
1. Enhance skills for utilizing standard desktop application software – including spreadsheets, DBM systems and Web programming – to manage and communicate information.
2. Locate and appraise bio-medical information in both the primary medical research literature and on the Internet, using both proprietary and publicly available information systems.
3. Discuss the fundamental principles of healthcare informatics.
4. Recognize the role of information in clinical decision-making and healthcare delivery.
5. Describe the principles of clinical data processing and relational database management.
6. Define the elements essential to clinical decision-support and expert systems.
7. Explain the clinical applications, strategic advantages, security considerations and privacy concerns associated with the electronic patient record.
8. Identify technology solutions and articulate policy strategies for the acquisition, preservation and dissemination of medical knowledge.

9. Develop skills for the critical appraisal and strategic evaluation of healthcare information management systems.

10. Prepare and present findings of group research into emerging technology solutions for healthcare information management applications.

11. Demonstrate acquired technology appraisal skills through written and oral communications.

Course Outline

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<th>Date</th>
<th>Subject</th>
<th>Reading Assignments</th>
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<tr>
<td>1/30</td>
<td>Course Requirements / Informatics / Database Intro</td>
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<tr>
<td>2/6</td>
<td>Commercial Database Systems / Access</td>
<td>Access Handout</td>
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<tr>
<td>2/13</td>
<td>Database System Fundamentals</td>
<td>Chapter 1</td>
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<td>2/20</td>
<td>Relational Data Model</td>
<td>Chapter 2</td>
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<td>Structured Query Language</td>
<td>Chapter 3 - Quiz #1</td>
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<td>3/6</td>
<td>Data Modeling and E-R Diagrams</td>
<td>Chapter 4</td>
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<td>3/14</td>
<td>Database Design</td>
<td>Chapter 5 - Quiz #2</td>
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<td>3/21</td>
<td>Spring Break</td>
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<td>3/27</td>
<td>Midterm (Materials covered on Quiz 1 and Quiz 2)</td>
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<td>4/3</td>
<td>EHR systems (databases and application logic)</td>
<td>Chapter 7 and 8</td>
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<td>4/10</td>
<td>Web applications</td>
<td>Chapter 6</td>
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<td>4/17</td>
<td>Advanced Database Topics/Data Warehousing</td>
<td>Quiz #3</td>
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<td>4/24</td>
<td>Business Intelligence (Excel and beyond)</td>
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<td>5/1</td>
<td>Semantic Web, Graph, and Document Databases</td>
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<td>5/8</td>
<td>Project Discussion / Final Review</td>
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<td>5/15</td>
<td>Final Exam</td>
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Blackboard:
Students will use the Blackboard system to access additional reading and class assignments, presentation slides, to review important notices regarding the class, and to access course documentation. Students are required to check Blackboard regularly, to remain informed about changes to class schedules and/or content.

Attendance:
Attendance is mandatory and will be reflected in your class participation grade. Attendance will be taken at the beginning of every class and at each computer laboratory section. It is the responsibility of the student to ensure that they have signed the attendance sheet. Please refer to the orientation packet section describing the School of Health Technology and Management BSHS Program policy regarding absences and lateness.

Participation:
Participation is strongly suggested. It will be reflected in your participation grade.

Quizzes:
On the weeks indicated, there will be a brief quiz that covers material from the assigned readings and class discussion. Quizzes should take no longer than 15 minutes to complete.

Assignments:
All assignments must be submitted on or before the due date. Late assignments will not be accepted – there are no exceptions. Students who submit their assignments via e-mail are responsible for verifying that the material was sent and received by the assigned due date.

Teaching Strategies:  
Lectures  
Group Discussion  
Hands-on computer-based laboratory exercises

Evaluation:  
Midterm  
   20%  
Final  
   30%  
Project  
   25%  
Participation/Assignment  
   10%  
Quizzes  
   15%

Rationale:  
This is a concentration course for informatics track BSHS students.

Americans with Disabilities Act:
If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.
Academic Integrity:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report and suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (Schools of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/

Critical Incident Management:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and School of Medicine are required to follow their school-specific procedures.